



DISH Wireless L.L.C. SITE ID:

SESEA00297B

DISH Wireless L.L.C. SITE ADDRESS:

**10210 NE POINTS DR
KIRKLAND, WA 98033**

**A SEPARATE ELECTRICAL
PERMIT IS REQUIRED**

SCOPE OF WORK

THIS IS NOT AN ALL INCLUSIVE LIST. CONTRACTOR SHALL UTILIZE SPECIFIED EQUIPMENT PART OR ENGINEER APPROVED EQUIVALENT. CONTRACTOR SHALL VERIFY ALL NEEDED EQUIPMENT TO PROVIDE A FUNCTIONAL SITE. THE PROJECT GENERALLY CONSISTS OF THE FOLLOWING:

- ROOFTOP SCOPE OF WORK:
- INSTALL (6) PROPOSED PANEL ANTENNAS
 - INSTALL PROPOSED JUMPERS
 - INSTALL (12) PROPOSED RRUS
 - INSTALL (3) PROPOSED OVER VOLTAGE PROTECTION DEVICE (OVP)
 - INSTALL PROPOSED CABLE LADDER TRAY OR CABLE TRAY
 - INSTALL (3) HCS HYBRID CABLE IN CABLE TRAY
 - INSTALL (1) PROPOSED METAL PLATFORM WITH H-FRAME
 - INSTALL (1) PROPOSED CABLE LADDER TRAY OR CABLE TRAY
 - INSTALL (1) PROPOSED EQUIPMENT CABINET
 - INSTALL (1) PROPOSED POWER CONDUIT
 - INSTALL (1) PROPOSED TELCO CONDUIT
 - INSTALL (1) PROPOSED NEMA 3 TELCO-FIBER BOX
 - INSTALL (1) PROPOSED GPS UNIT
 - INSTALL (1) PROPOSE FIBER NID

SITE INFORMATION

PROPERTY OWNER: BRAXTON DOUGHERTY
SITE ADDRESS: 10210 NE POINTS DR
KIRKLAND, WA 98033

TOWER TYPE: ROOFTOP

COUNTY: KING COUNTY

LATITUDE (NAD 83): 47.643617

LONGITUDE (NAD 83): -122.203819

ZONING JURISDICTION: CITY OF KIRKLAND

ZONING DISTRICT: KING COUNTY

PARCEL NUMBER: X

OCCUPANCY GROUP: U

CONSTRUCTION TYPE: II-B

POWER COMPANY: PSE

TELEPHONE COMPANY: AT&T

PROJECT DIRECTORY

APPLICANT: DISH Wireless L.L.C.
5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

SITE DESIGNER: MODUS, LLC
1614 SE 10TH AVE
PORTLAND, OR 97214
(415) 989-1102

SITE ACQUISITION: PAIGE NAYES
(925) 872-1709
PAIGE.NAYES@DISH.COM

TOWER MANAGER: DAN DAVIS
(847) 903-8675
DAN.DAVIS@5GLLC.NET

CONSTRUCTION MANAGER: EDWIN JENNINGS
EDWIN.JENNINGS@DISH.COM

RF ENGINEER: MOHAMED ALFASI
MOHAMED.ALFASI@DISH.COM

WASHINGTON - CODE COMPLIANCE

ALL WORK SHALL BE PERFORMED AND MATERIALS INSTALLED IN ACCORDANCE WITH THE CURRENT EDITIONS OF THE FOLLOWING CODES AS ADOPTED BY THE LOCAL GOVERNING AUTHORITIES. NOTHING IN THESE PLANS IS TO BE CONSTRUED TO PERMIT WORK NOT CONFORMING TO THESE CODES:

CODE TYPE	CODE
BUILDING	2018 IBC W/ W.A.C. AMENDMENTS
MECHANICAL	2018 IMC W/ W.A.C. AMENDMENTS
ELECTRICAL	2017 NEC W/ W.A.C. AMENDMENTS

SHEET INDEX

SHEET NO.	SHEET TITLE
T-1	TITLE SHEET
A-1	OVERALL SITE PLAN
A-2	ENLARGED SITE PLAN
A-3	ANTENNA PLAN, ELEVATION AND SCHEDULE
A-4	ELEVATIONS
A-5	CONCRETE SLAB AND H-FRAME DETAILS
A-6	EQUIPMENT DETAILS
A-7	EQUIPMENT DETAILS
E-1	ELECTRICAL/FIBER ROUTE PLAN AND NOTES
E-2	ELECTRICAL DETAILS
E-3	ELECTRICAL ONE-LINE, FAULT CALCS
G-1	GROUNDING PLANS AND NOTES
G-2	GROUNDING DETAILS
G-3	GROUNDING DETAILS
RF-1	RF CABLE COLOR CODE
GN-1	LEGEND AND ABBREVIATIONS
GN-2	GENERAL NOTES
GN-3	GENERAL NOTES
GN-4	GENERAL NOTES

PCD APPROVED WIRELESS FACILITY AND/OR SITE PLAN

Any proposed changes to the approved wireless facility and/or site plan, such as but not limited to, antenna and/or conduit configuration, added hard surfaces, accessory equipment/cabinets, or tree removals, must be submitted as a revision to the Wireless Permit and/or Public Works permit for review and approval prior to implementation.

CONCEALMENT MEASURES

Antennas shall be integrated in to the design of the structure to which they are attached. External projections from the structure shall be limited to the greatest extent technically feasible. The antennas and any visible mounting brackets and/or cables shall be painted to match the existing building facade or roof color.

PLACING MATERIAL NEAR TREES

No person may conduct any activity within the protected area of any tree designated to remain, including but not limited to, operating or parking equipment, placing solvents, storing building material or soil deposits, or dumping concrete washout or other chemicals. During construction no person shall attach any object to any tree designated for protection.

WIRELESS FACILITY CONCEALMENT

Antenna, ancillary equipment, and any conduit or miscellaneous equipment, shall be mounted as flush to the replacement poles as technologically feasible. All equipment & conduit shall be painted to match the pole or be shrouded within the pole.

SITE PHOTO



UNDERGROUND SERVICE ALERT
UTILITY NOTIFICATION CENTER OF WASHINGTON
(800) 642-2444
WWW.CALLBEFOREYOU.DIG.ORG
CALL 2-14 WORKING DAYS UTILITY NOTIFICATION PRIOR TO CONSTRUCTION



GENERAL NOTES

THE FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION. A TECHNICIAN WILL VISIT THE SITE AS REQUIRED FOR ROUTINE MAINTENANCE. THE PROJECT WILL NOT RESULT IN ANY SIGNIFICANT DISTURBANCE OR EFFECT ON DRAINAGE. NO SANITARY SEWER SERVICE, POTABLE WATER, OR TRASH DISPOSAL IS REQUIRED AND NO COMMERCIAL SIGNAGE IS PROPOSED.

UNLESS OTHERWISE NOTED

ING DIMENSIONS, AND CONDITIONS ON
ENGINEER IN WRITING OF ANY DISCREPANCIES BEFORE
THE WORK.

DIRECTIONS

DIRECTIONS FROM SEATAC AIRPORT:

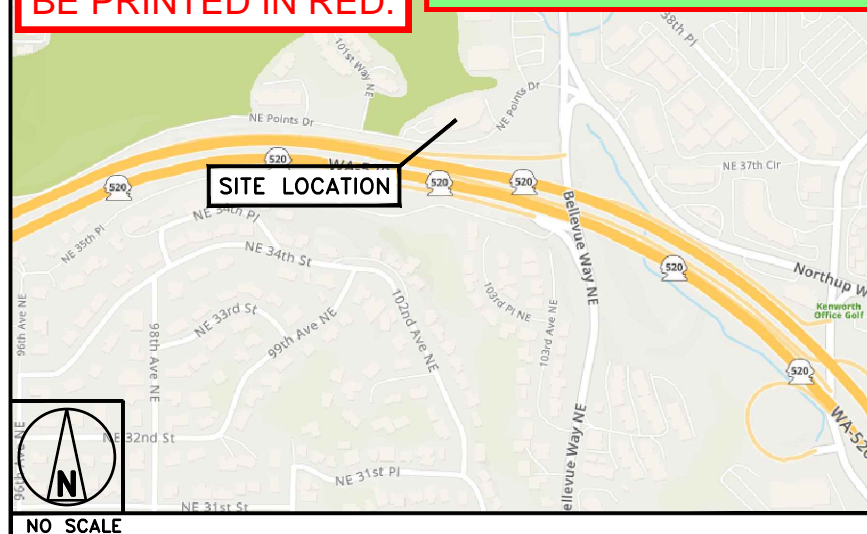
- START OUT GOING NORTH. TURN SLIGHT LEFT.
- TURN RIGHT ONTO AIRPORT EXPY.
- MERGE ONTO WA-518 E TOWARD SEATTLE/TACOMA/1-5/1-405.
- MERGE ONTO I-405 N VIA THE EXIT ON THE LEFT.
- MERGE ONTO WA-520 W VIA EXIT 14 TOWARD REDMOND/SEATTLE.
- TAKE THE 108TH AVE NE EXIT. TURN RIGHT ONTO 108TH AVE.
- TURN LEFT ONTO NORTHPUR WAY.
- NORTHPUR WAY BECOMES NE POINTS DR.
- 10210 NE POINTS DR, KIRKLAND, WA 98033-7800, 10210 NE POINTS DR IS ON THE RIGHT.

VICINITY MAP

**APPROVED PLAN
SET MUST REMAIN
ON SITE.**

**CITY MARKUPS &
APPROVALS MUST
BE PRINTED IN RED.**

**SCOPE OF WORK - Changes to the
scope of work, design, materials or
method of construction will require
revised plans to be submitted. The
plans must be reviewed and approved
by City of Kirkland review staff prior to
being implemented in the field.
Additional review fees will be charges
as applicable.**



City of Kirkland
Reviewed By J Goucher
03/07/2023



5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120



MODUS, LLC
1614 SE 10TH AVE
PORTLAND, OR
97214



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DRAWN BY: CHECKED BY: APPROVED BY:

APE BPM LJB

RFDS REV #: 1 01/04/22

CONSTRUCTION DOCUMENTS

SUBMITTALS		
REV	DATE	DESCRIPTION
△	04.29.2022	90% ZD
△	05.17.2022	90% CD
△	01.13.2023	100% CD

A&E PROJECT NUMBER

SESEA00297B

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PROJECT INFORMATION

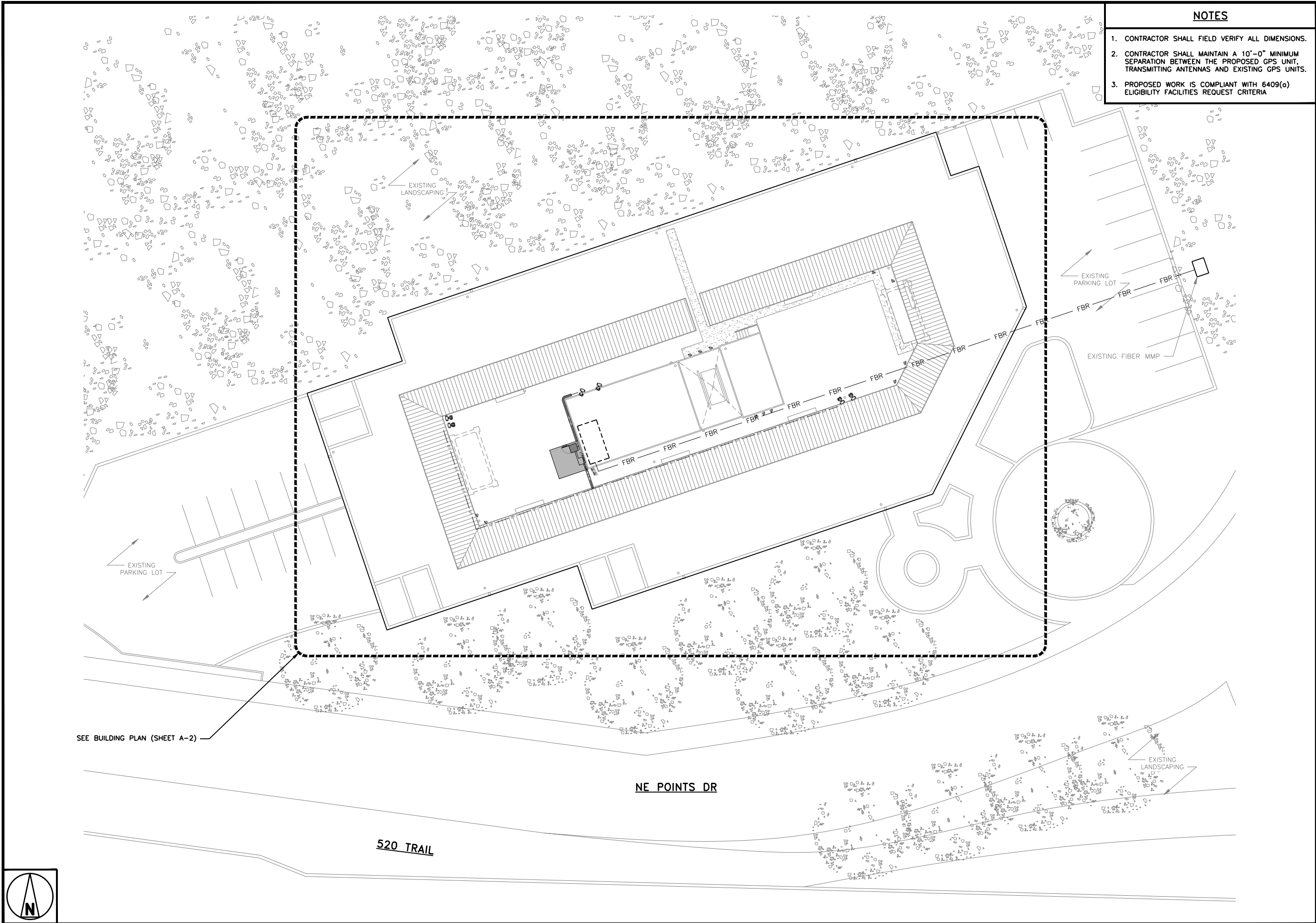
**SESEA00297B
10210 NE POINTS DR
KIRKLAND, WA 98033**

SHEET TITLE

TITLE SHEET

SHEET NUMBER

T-1



NOTES

- 1. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS.
- 2. CONTRACTOR SHALL MAINTAIN A 10'-0" MINIMUM SEPARATION BETWEEN THE PROPOSED GPS UNIT, TRANSMITTING ANTENNAS AND EXISTING GPS UNITS.
- 3. PROPOSED WORK IS COMPLIANT WITH 6409(c) ELIGIBILITY FACILITIES REQUEST CRITERIA



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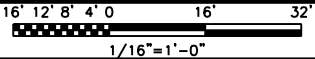
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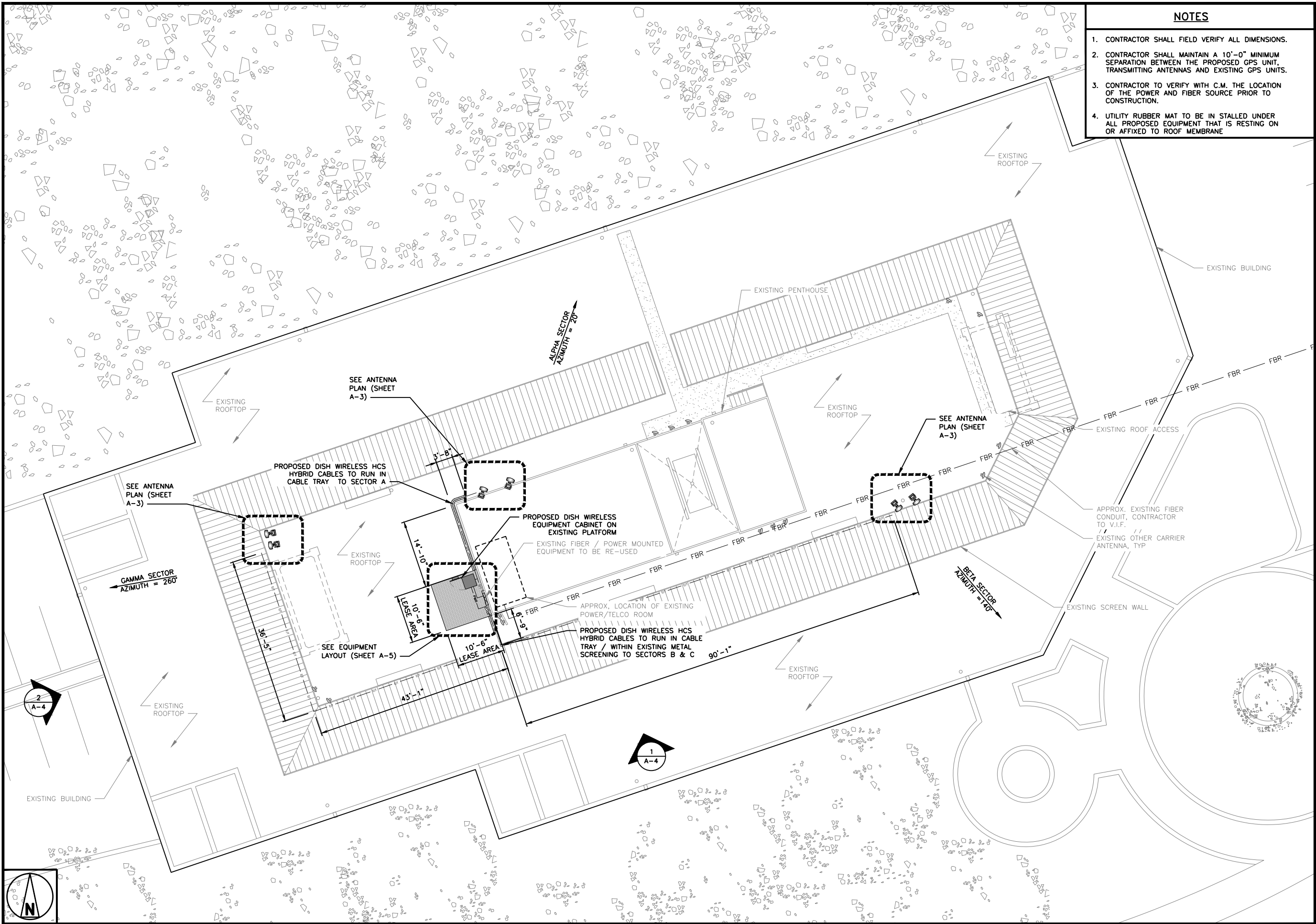
SHEET TITLE
OVERALL
SITE PLAN

SHEET NUMBER
A-1



OVERALL SITE PLAN





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3. CONTRACTOR TO VERIFY WITH C.M. THE LOCATION OF THE POWER AND FIBER SOURCE PRIOR TO CONSTRUCTION.
4. UTILITY RUBBER MAT TO BE IN STALLED UNDER ALL PROPOSED EQUIPMENT THAT IS RESTING ON OR AFFIXED TO ROOF MEMBRANE



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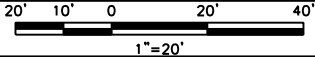
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PROJECT INFORMATION

SESEA00297B
10210 NE POINTS DR
KIRKLAND, WA 98033

SHEET TITLE
ENLARGED BUILDING
PLAN

SHEET NUMBER
A-2

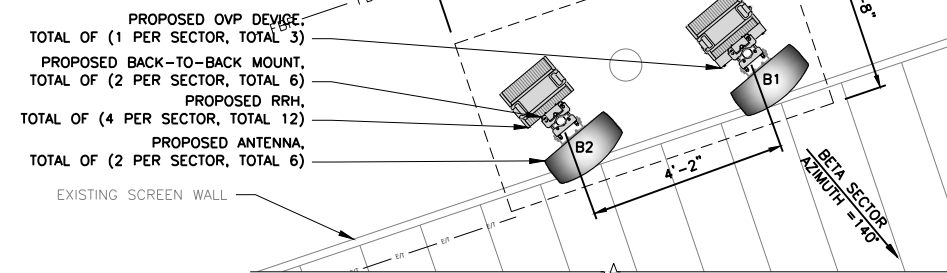
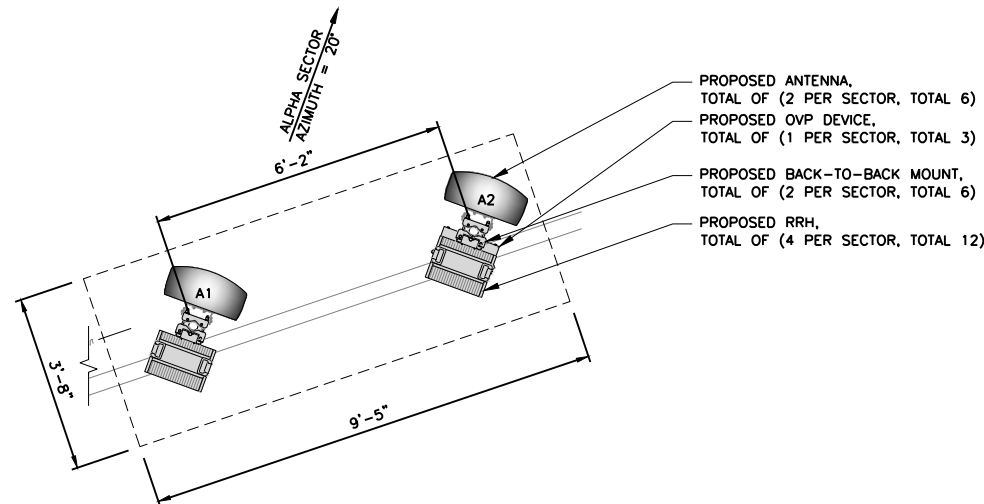
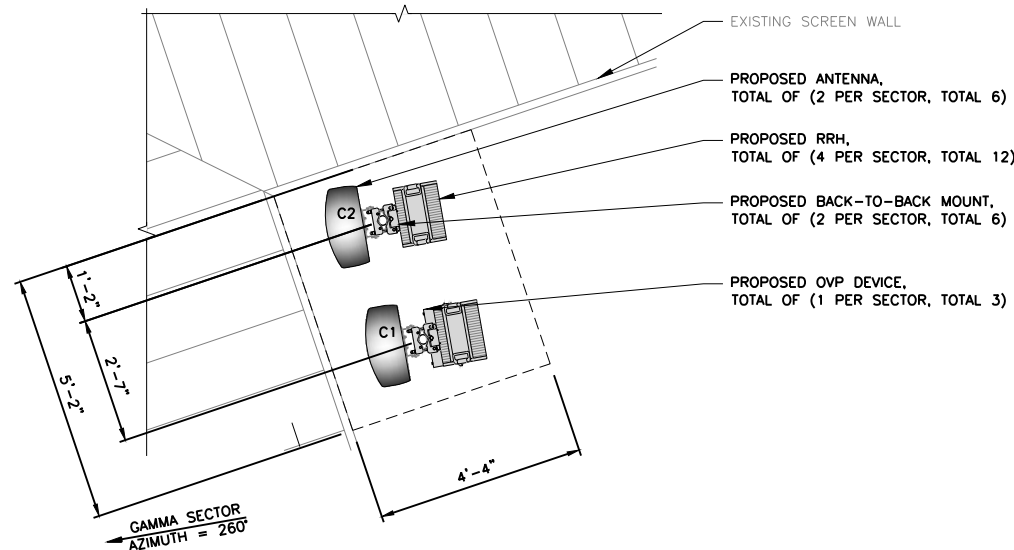
ENLARGED BUILDING PLAN



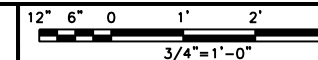
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NOTES

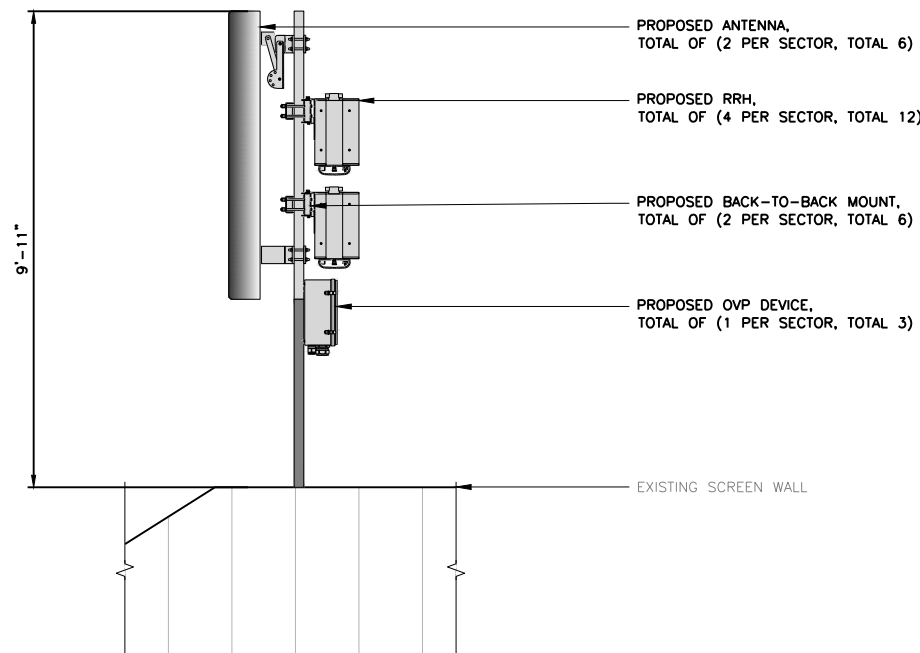
1. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS.
2. ANTENNA AND MW DISH SPECIFICATIONS REFER TO ANTENNA SCHEDULE AND TO FINAL CONSTRUCTION RFDS FOR ALL RF DETAILS



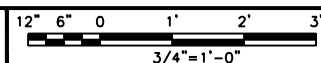
ANTENNA PLAN (TYPICAL PER SECTOR)



1



ANTENNA ELEVATION



2

SECTOR	POSITION	ANTENNA						TRANSMISSION CABLE
		EXISTING OR PROPOSED	MANUFACTURER – MODEL NUMBER	TECHNOLOGY	SIZE (HxW)	AZIMUTH	RAD CENTER	FEED LINE TYPE AND LENGTH
ALPHA	A1	PROPOSED	COMMSCOPE FFV–65B–R2	5G	72"x19.6"x7.8"	20°	73'–0"	(1) HCS CABLE (30' LONG)
	A2	PROPOSED	COMMSCOPE FFV–65B–R2		72"x19.6"x7.8"		73'–0"	
BETA	B1	PROPOSED	COMMSCOPE FFV–65B–R2	5G	72"x19.6"x7.8"	140°	73'–0"	(1) HCS CABLE (125' LONG)
	B2	PROPOSED	COMMSCOPE FFV–65B–R2		72"x19.6"x7.8"		73'–0"	
GAMMA	C1	PROPOSED	COMMSCOPE FFV–65B–R2	5G	72"x19.6"x7.8"	260°	73'–0"	(1) HCS CABLE (100' LONG)
	C2	PROPOSED	COMMSCOPE FFV–65B–R2		72"x19.6"x7.8"		73'–0"	
SECTOR	POSITION	RRH		NOTES				
		MANUFACTURER – MODEL NUMBER	TECHNOLOGY					
ALPHA	A1/A2	SAMSUNG – RF4450T–71A	5G	1. CONTRACTOR TO REFER TO FINAL CONSTRUCTION RFDS FOR ALL RF DETAILS. 2. ANTENNA AND RRH MODELS MAY CHANGE DUE TO EQUIPMENT AVAILABILITY. ALL EQUIPMENT CHANGES MUST BE APPROVED AND REMAIN IN COMPLIANCE WITH THE PROPOSED DESIGN AND STRUCTURAL ANALYSES.				
	A1/A2	SAMSUNG – RF4451D–70A	5G					
BETA	B1/B2	SAMSUNG – RF4450T–71A	5G					
	B1/B2	SAMSUNG – RF4451D–70A	5G					
GAMMA	C1/C2	SAMSUNG – RF4450T–71A	5G					
	C1/C2	SAMSUNG – RF4451D–70A	5G					

ANTENNA SCHEDULE

NO SCALE

3

dish
wireless

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LITTLETON, CO 80120



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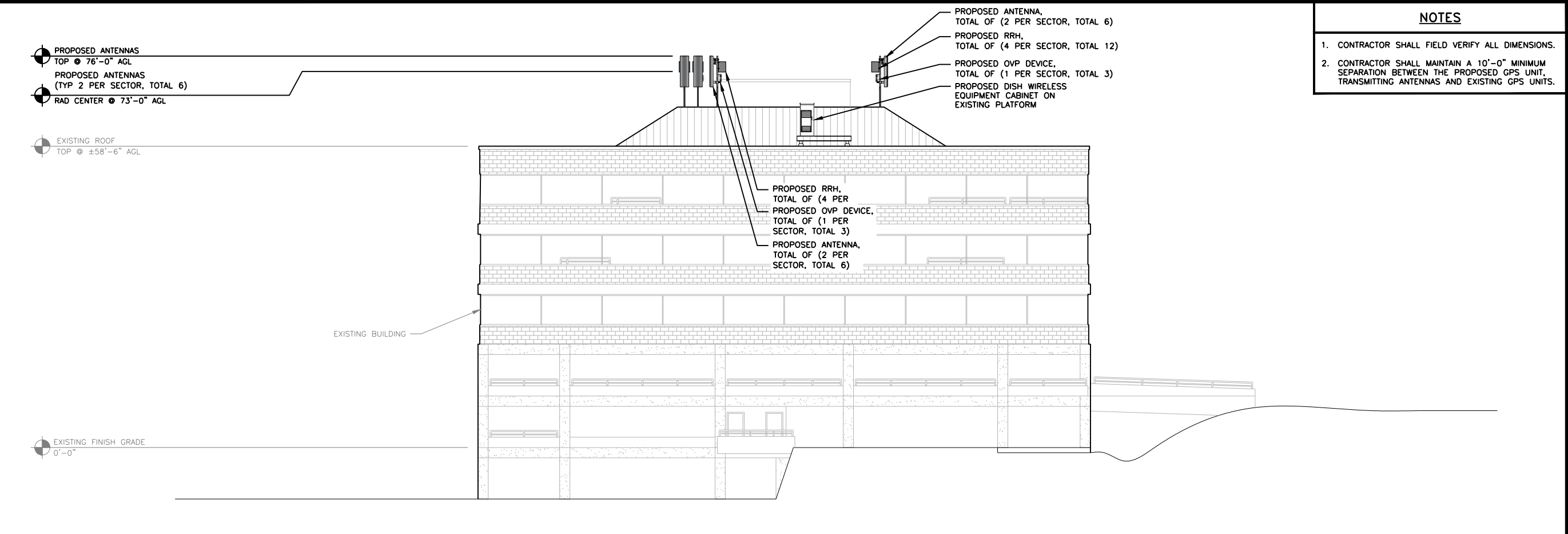
DISH Wireless L.L.C.
PROJECT INFORMATION

SESEA00297B
10210 NE POINTS DR
KIRKLAND, WA 98033

SHEET TITLE
ANTENNA PLAN,
ELEVATION AND SCHEDULE

SHEET NUMBER

A-3



- NOTES
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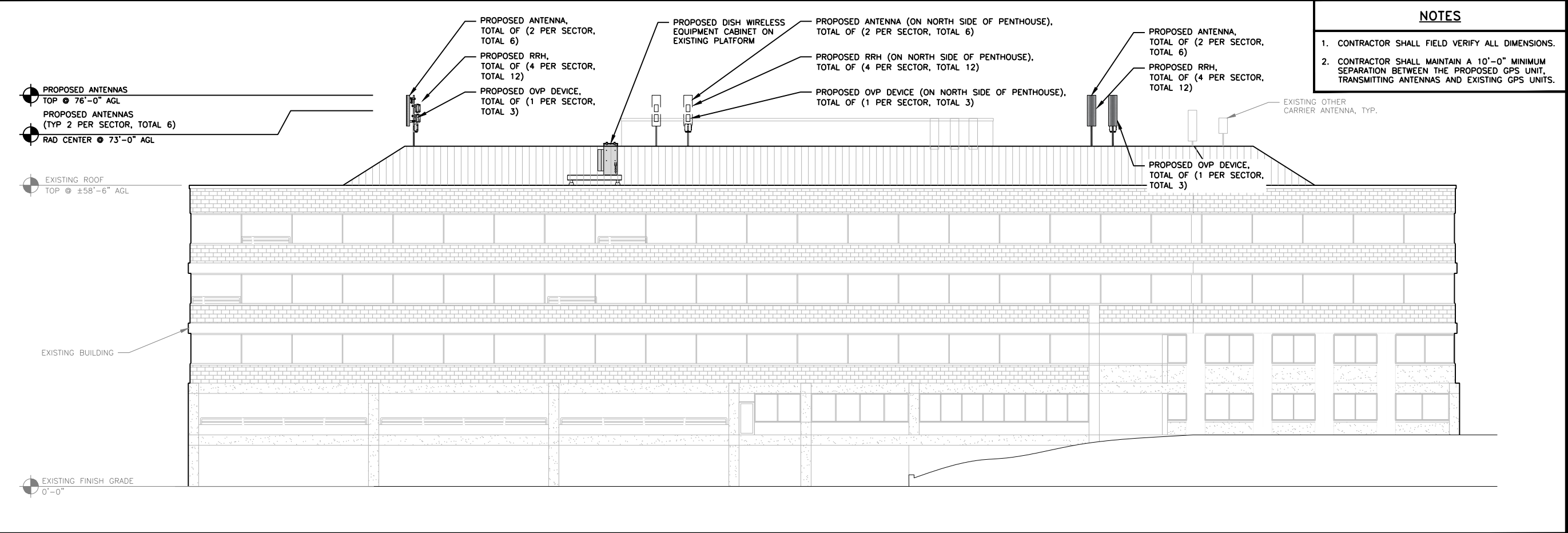
2. CONTRACTOR SHALL MAINTAIN A 10'-0" MINIMUM SEPARATION BETWEEN THE PROPOSED GPS UNIT, TRANSMITTING ANTENNAS AND EXISTING GPS UNITS.

BUILDING WEST ELEVATION

16' 12' 8' 4' 0 16' 32'

1/16"=1'-0"

1



- NOTES
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2. CONTRACTOR SHALL MAINTAIN A 10'-0" MINIMUM SEPARATION BETWEEN THE PROPOSED GPS UNIT, TRANSMITTING ANTENNAS AND EXISTING GPS UNITS.

BUILDING SOUTH ELEVATION

16' 12' 8' 4' 0 16' 32'

1/16"=1'-0"

2

dish
wireless

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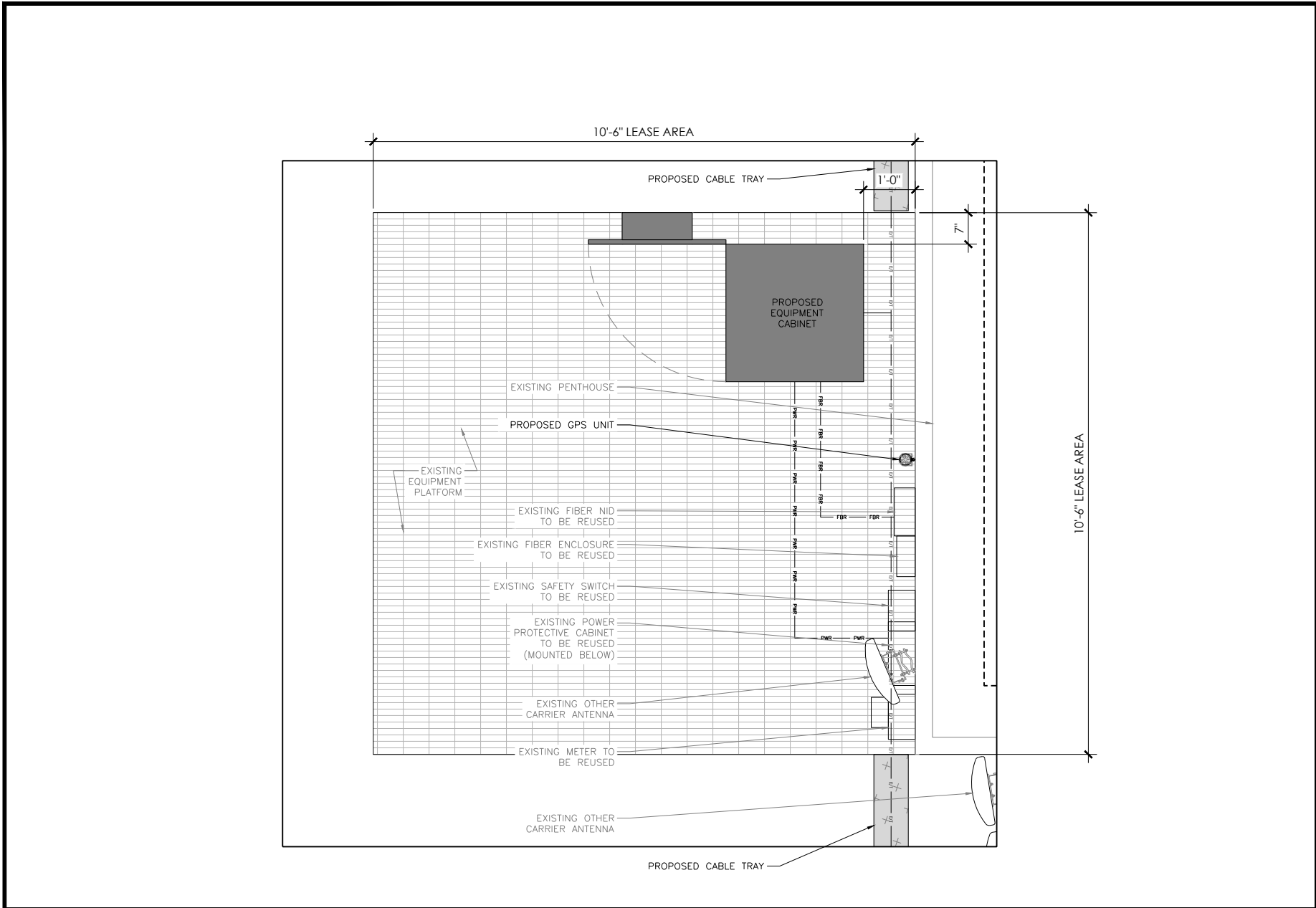
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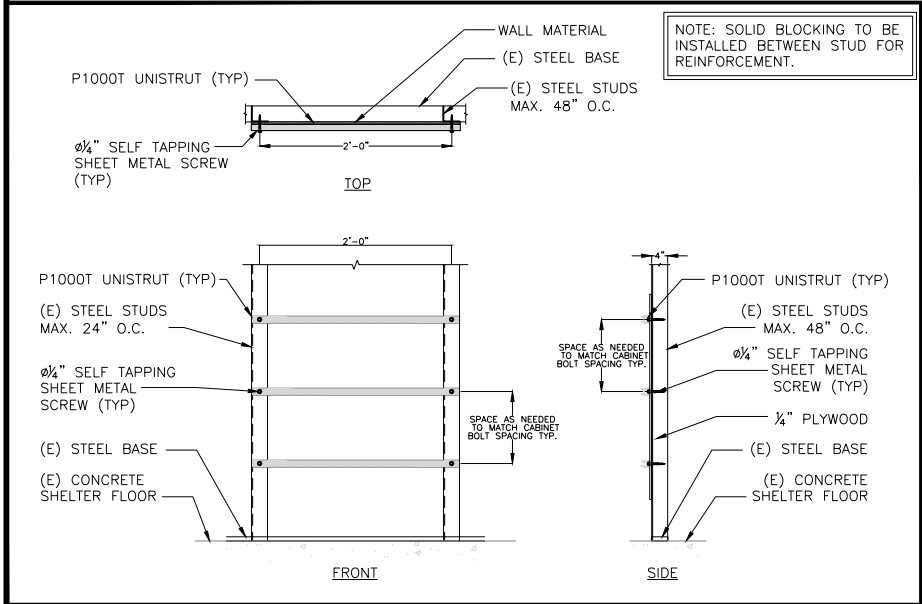
ELEVATIONS

SHEET NUMBER

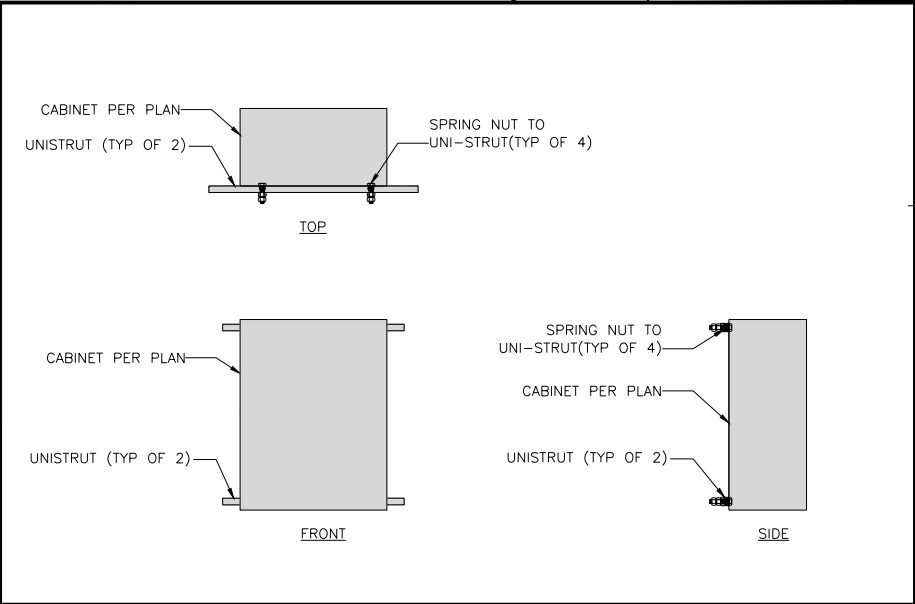
A-4



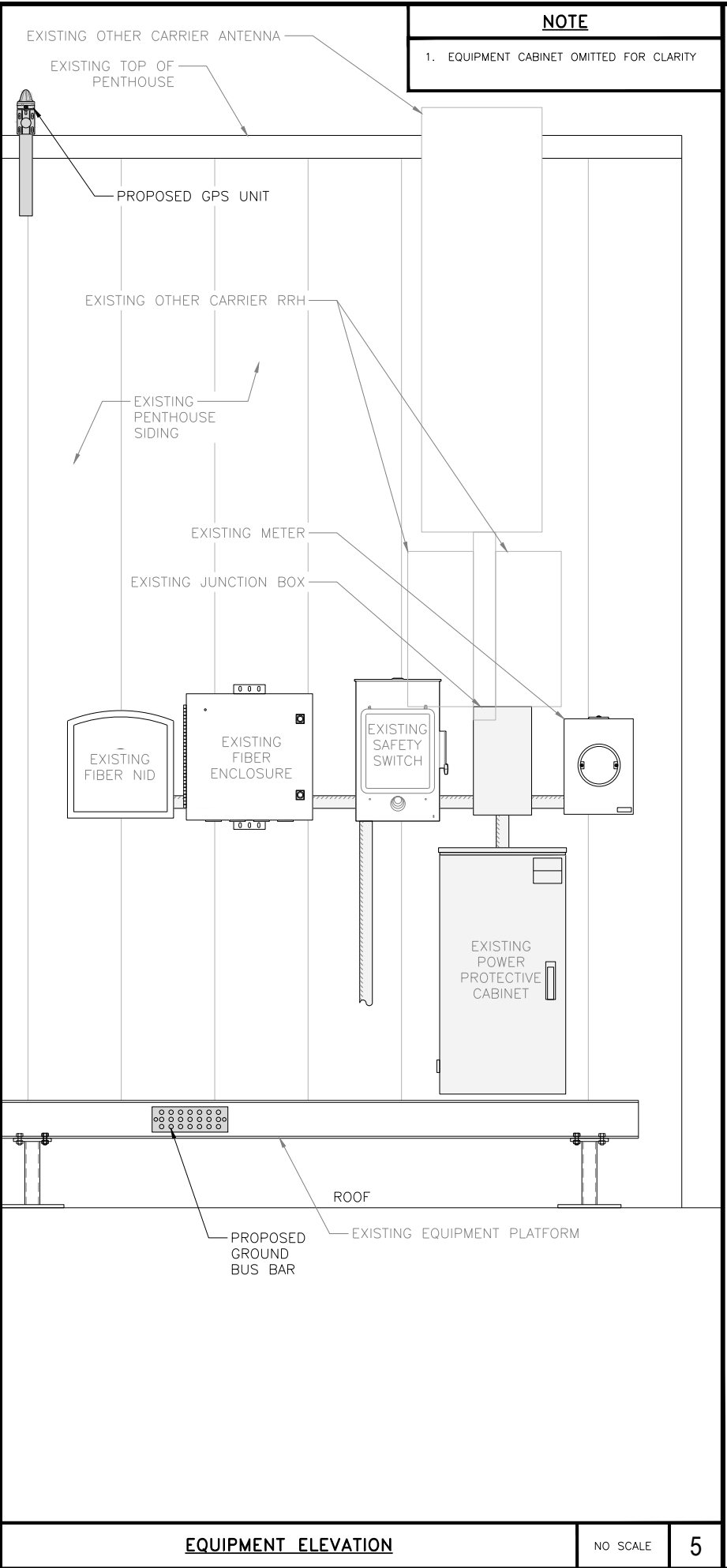
12" 6" 0 1' 2' 3' 3/4"=1'-0" 1



UNISTRUT TO STEEL STUD CONNECTION DETAIL NO SCALE 3



CABINET MOUNTING DETAIL NO SCALE 4



EQUIPMENT ELEVATION NO SCALE 5

NOTE
1. EQUIPMENT CABINET OMITTED FOR CLARITY



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10210 NE POINTS DR
KIRKLAND, WA 98033

SHEET TITLE
EQUIPMENT PLATFORM AND
H-FRAME DETAILS

SHEET NUMBER

A-5

CHARLES INDUSTRY HEX
CUBE-PM639155N4

DIMENSIONS (HxWxD):	74"x32"x32"
POWER PLANT:	-48VDC ABB/600W
TOTAL WEIGHT (EMPTY)	408 LBS
TOTAL WEIGHT (FULLY LOADED)	1,067 LBS

PLAN

SIDE

BACK

SIDE

FRONT

CABINET DETAIL

NO SCALE

1

UNISTRUT MOUNTING DETAIL

SIDE VIEW

UNISTRUT MOUNTING DETAIL

NO SCALE

2

GPS MOUNTING DETAIL

SIDE VIEW

GPS MOUNTING DETAIL

NO SCALE

3

PCTEL
GPSGL-TMG-SPI-40NCB

DIMENSIONS (DIAxH) MM/INCH	81x184mm 3.2"x7.25"
WEIGHT W/ACCESSORIES	075 lbs
CONNECTOR	N-FEMALE
FREQUENCY RANGE	1590 ± 30MHz

TOP

BACK

SIDE

GPS DETAIL

NO SCALE

5

GPS MINIMUM SKY VIEW REQUIREMENTS

10'

GPS MINIMUM SKY VIEW REQUIREMENTS

NO SCALE

6

CABLES UNLIMITED HYBRID CABLE
MINIMUM BEND RADII

FIRE RATING OF WALL Hr	NOM DEVICE SIZE INCH	F RATING Hr	T RATING Hr
1	1 1/2"	1	1
2	1 1/2"	2	1 1/2
1	2"	1	1
2	2"	2	1 1/2
1	3"	1	1
2	3"	2	2
1	4"	1	1
2	4"	2	2

CABLES UNLIMITED HYBRID CABLE
MINIMUM BEND RADII

NO SCALE

4

UTILITY RUBBER MAT, BLACK

DIMENSIONS	4'x 3'x 1/2"
WEIGHT/ VOLUME	36.5 LB AVERAGE
MATERIAL	100% RECYCLE RUBBER

UTILITY RUBBER MAT, BLACK

UTILITY RUBBER MAT DETAIL

NO SCALE

8

WALL PENETRATION DETAIL

PIPE TYPE	SIZES
PVC	NOM #4\" OR SMALLER, SCH 40 SOLID OR CELLULAR CORE PVC PIPE USE IN CLOSED OR VENTED SYSTEMS
RIGID NONMETALLIC CONDUIT	NOM #4\" OR SMALLER, SCH 40 SOLID OR 80 PVC CONDUIT PER REC. (NFPA NO. 70)
CPVC	NOM #4\" OR SMALLER, SCH 15.5 CPVC PIPE FOR USE IN CLOSED PIPING SYSTEMS
ABS	NOM #4\" OR SMALLER, SCH 40 SOLID OR FOAM CORE ABS USE IN CLOSED OR VENTED SYSTEMS
FRPP	NOM #4\" OR SMALLER, SCH 40 SOLID PIPE FOR USE IN CLOSED OR VENTED SYSTEMS

THROUGH-PENETRATION FIRESTOP SYSTEM NO. W-L-2029

WALL PENETRATION DETAIL

NO SCALE

7

NOT USED

NOT USED

NO SCALE

9

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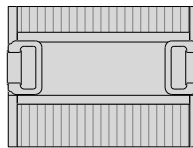
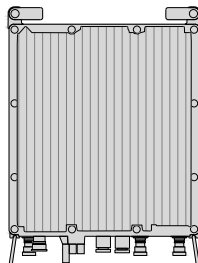
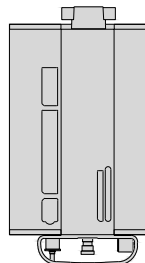
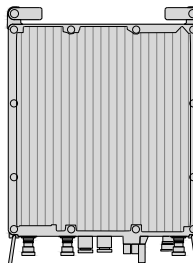
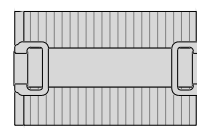
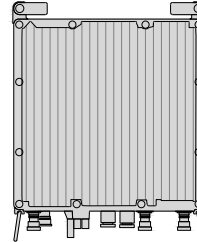
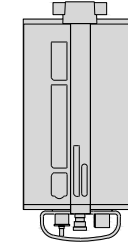
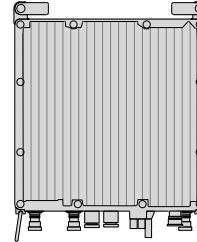
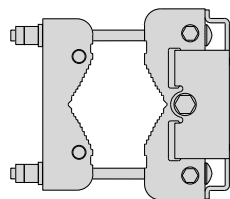
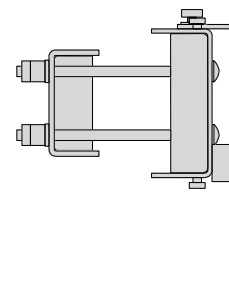
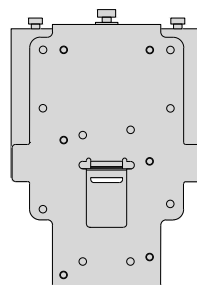

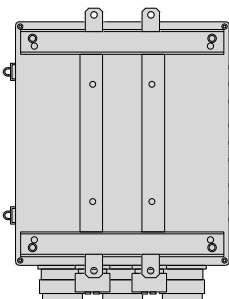
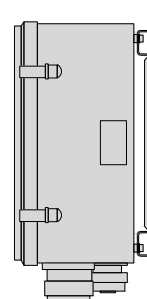
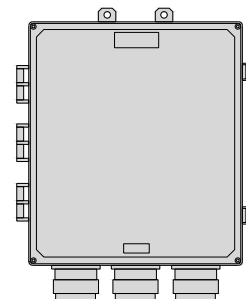


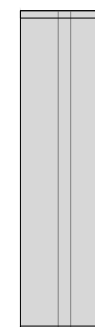
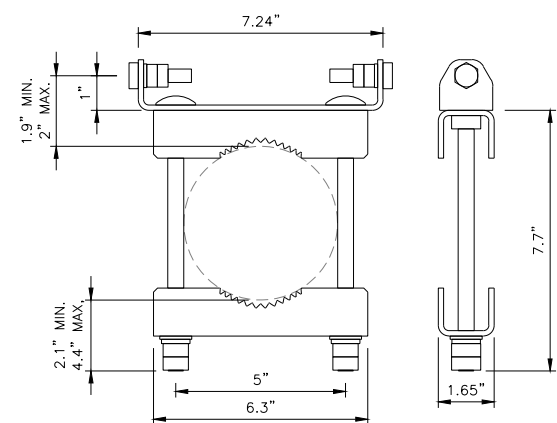
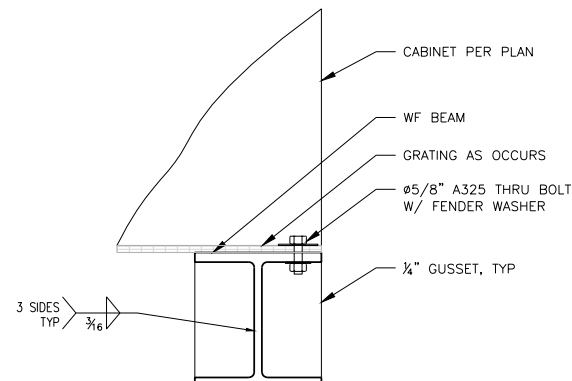
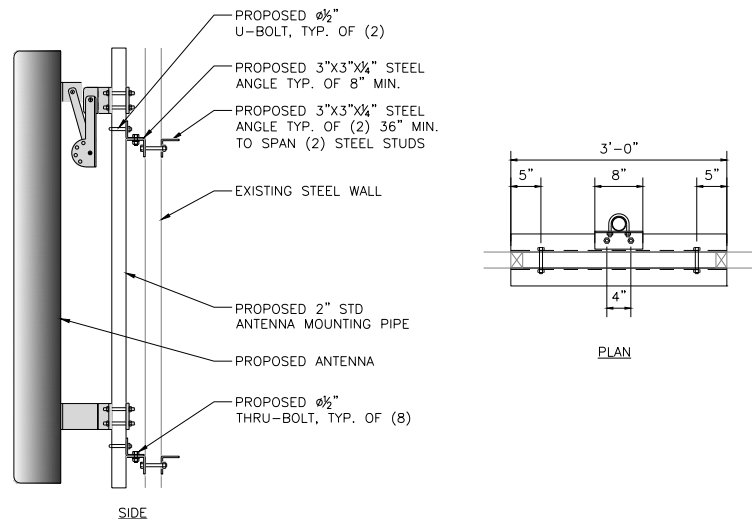
DISH Wireless L.L.C.
PROJECT INFORMATION
SESEA00297B
10210 NE POINTS DR
KIRKLAND, WA 98033

SHEET TITLE
EQUIPMENT DETAILS

SHEET NUMBER
A-6

DISH Wireless L.L.C. TEMPLATE VERSION 38 – 07/23/2021

BNR23-00595_APPROVED PLANS_03/28/2023_Page 7 of 19

<div>SAMSUNG – LOW BAND RF4450T-71A</div> <table><tr><td>DIMENSIONS (HxWxD)</td><td>15"x16.5"x11"</td></tr><tr><td>WEIGHT</td><td>94.6 lbs</td></tr><tr><td>CONNECTOR TYPE</td><td>4.3-10 RF CONNECTOR -48VDC</td></tr><tr><td>INPUT VOLTAGE</td><td>(-36 to 58 VDC)</td></tr></table> <div><div>PLAN</div><div><div>BACK</div><div>SIDE</div><div>FRONT</div></div></div>			DIMENSIONS (HxWxD)	15"x16.5"x11"	WEIGHT	94.6 lbs	CONNECTOR TYPE	4.3-10 RF CONNECTOR -48VDC	INPUT VOLTAGE	(-36 to 58 VDC)	<div>SAMSUNG – MID BAND RF4451D-70A</div> <table><tr><td>DIMENSIONS (HxWxD)</td><td>15"x15"x8.9"</td></tr><tr><td>WEIGHT</td><td>61.3 lbs</td></tr><tr><td>CONNECTOR TYPE</td><td>4.3-10 RF CONNECTOR -48VDC</td></tr><tr><td>INPUT VOLTAGE</td><td>(-36 to 58 VDC)</td></tr></table> <div><div>PLAN</div><div><div>BACK</div><div>SIDE</div><div>FRONT</div></div></div>			DIMENSIONS (HxWxD)	15"x15"x8.9"	WEIGHT	61.3 lbs	CONNECTOR TYPE	4.3-10 RF CONNECTOR -48VDC	INPUT VOLTAGE	(-36 to 58 VDC)	<div>SAMSUNG FDD RRH POLE MOUNT</div> <table><tr><td>DIMENSIONS (HxWxD)</td><td>9.8"x7"x10"</td></tr><tr><td>WEIGHT</td><td>TBD</td></tr></table> <div><div>PLAN</div><div>SIDE</div><div>FRONT</div></div>			DIMENSIONS (HxWxD)	9.8"x7"x10"	WEIGHT	TBD
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RRH DETAIL			NO SCALE	1	RRH DETAIL			NO SCALE	2	RRH MOUNT DETAIL			NO SCALE	3														
<div>RAYCAP RDIDC-3045-PF-48 SURGE PROTECTION DEVICE (OVP)</div> <table><tr><td>DIMENSIONS (HxWxD)</td><td>19"x16.21"x9.64"</td></tr><tr><td>WEIGHT</td><td>21 lbs</td></tr></table> <div><div>PLAN</div><div><div>BACK</div><div>SIDE</div><div>FRONT</div></div></div>			DIMENSIONS (HxWxD)	19"x16.21"x9.64"	WEIGHT	21 lbs	<div>COMMSCOPE FFV-65B-R2</div> <table><tr><td>DIMENSIONS (HxWxD)(MM/IN)</td><td>1828x498x197 72"x19.6"x7.8"</td></tr><tr><td>TOTAL WEIGHT</td><td>70.8 lbs</td></tr><tr><td>RF CONNECTOR INTERFACE</td><td>4.3-10 FEMALE</td></tr></table> <div><div>PLAN</div><div><div>SIDE</div><div>FRONT</div></div></div>			DIMENSIONS (HxWxD)(MM/IN)	1828x498x197 72"x19.6"x7.8"	TOTAL WEIGHT	70.8 lbs	RF CONNECTOR INTERFACE	4.3-10 FEMALE	<div>COMMSCOPE ANTENNA BRACKET BSAMNT-F</div> <table><tr><td>DIAMETER COMPATIBILITY</td><td>2.402" – 4.5"</td></tr><tr><td>NET WEIGHT</td><td>7.937 lbs</td></tr></table> <div><div>NOTE: OR DISH Wireless L.L.C. APPROVED EQUIVALENT</div></div>			DIAMETER COMPATIBILITY	2.402" – 4.5"	NET WEIGHT	7.937 lbs						
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SURGE PROTECTION DEVICE (OVP) DETAIL			NO SCALE	4	ANTENNA DETAIL			NO SCALE	5	ANTENNA BRACKET DETAIL			NO SCALE	6														
																												
CABINET TO STEEL WF BEAM DETAIL			NO SCALE	7	ANTENNA MOUNT DETAIL			NO SCALE	8	NOT USED			NO SCALE	9														

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DRAWN BY: CHECKED BY: APPROVED BY:

APE BPM LJB

RFDS REV #: 1 01/04/22

CONSTRUCTION DOCUMENTS

SUBMITTALS		
REV	DATE	DESCRIPTION
△	04.29.2022	90% CD
△	05.17.2022	90% CD
△	01.13.2023	100% CD

A&E PROJECT NUMBER

SESEA00297B

DISH Wireless L.L.C.
PROJECT INFORMATION

SESEA00297B
10210 NE POINTS DR
KIRKLAND, WA 98033

SHEET TITLE
EQUIPMENT DETAILS

SHEET NUMBER

A-7

A SEPARATE ELECTRICAL PERMIT IS REQUIRED

NOTES

1. CONTRACTOR SHALL FIELD VERIFY ALL PROPOSED UNDERGROUND UTILITY CONDUIT ROUTE.
2. ANTENNAS AND MOUNTS OMITTED FOR CLARITY.

DC POWER WIRING SHALL BE COLOR CODED AT EACH END FOR IDENTIFYING +24V AND -48V CONDUCTORS. RED MARKINGS SHALL IDENTIFY +24V AND BLUE MARKINGS SHALL IDENTIFY -48V.

1. CONTRACTOR SHALL INSPECT THE EXISTING CONDITIONS PRIOR TO SUBMITTING A BID. ANY QUESTIONS ARISING DURING THE BID PERIOD IN REGARDS TO THE CONTRACTOR'S FUNCTIONS, THE SCOPE OF WORK, OR ANY OTHER ISSUE RELATED TO THIS PROJECT SHALL BE BROUGHT UP DURING THE BID PERIOD WITH THE PROJECT MANAGER FOR CLARIFICATION, NOT AFTER THE CONTRACT HAS BEEN AWARDED.
2. ALL ELECTRICAL WORK SHALL BE DONE IN ACCORDANCE WITH CURRENT NATIONAL ELECTRICAL CODES AND ALL STATE AND LOCAL CODES, LAWS, AND ORDINANCES. PROVIDE ALL COMPONENTS AND WIRING SIZES AS REQUIRED TO MEET NEC STANDARDS.
3. LOCATION OF EQUIPMENT, CONDUIT AND DEVICES SHOWN ON THE DRAWINGS ARE APPROXIMATE AND SHALL BE COORDINATED WITH FIELD CONDITIONS PRIOR TO CONSTRUCTION.
4. CONDUIT ROUGH-IN SHALL BE COORDINATED WITH THE MECHANICAL EQUIPMENT TO AVOID LOCATION CONFLICTS. VERIFY WITH THE MECHANICAL EQUIPMENT CONTRACTOR AND COMPLY AS REQUIRED.
5. CONTRACTOR SHALL PROVIDE ALL BREAKERS, CONDUITS AND CIRCUITS AS REQUIRED FOR A COMPLETE SYSTEM.
6. CONTRACTOR SHALL PROVIDE PULL BOXES AND JUNCTION BOXES AS REQUIRED BY THE NEC ARTICLE 314.
7. CONTRACTOR SHALL PROVIDE ALL STRAIN RELIEF AND CABLE SUPPORTS FOR ALL CABLE ASSEMBLIES. INSTALLATION SHALL BE IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS AND RECOMMENDATIONS.
8. ALL DISCONNECTS AND CONTROLLING DEVICES SHALL BE PROVIDED WITH ENGRAVED PHENOLIC NAMEPLATES INDICATING EQUIPMENT CONTROLLED, BRANCH CIRCUITS INSTALLED ON, AND PANEL FIELD LOCATIONS FED FROM.
9. INSTALL AN EQUIPMENT GROUNDING CONDUCTOR IN ALL CONDUITS PER THE SPECIFICATIONS AND NEC 250. THE EQUIPMENT GROUNDING CONDUCTORS SHALL BE BONDED AT ALL JUNCTION BOXES, PULL BOXES, AND ALL DISCONNECT SWITCHES, AND EQUIPMENT CABINETS.
10. ALL NEW MATERIAL SHALL HAVE A U.L. LABEL.
11. PANEL SCHEDULE LOADING AND CIRCUIT ARRANGEMENTS REFLECT POST-CONSTRUCTION EQUIPMENT.
12. CONTRACTOR SHALL BE RESPONSIBLE FOR AS-BUILT PANEL SCHEDULE AND SITE DRAWINGS.
13. ALL TRENCHES IN COMPOUND TO BE HAND DUG

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wireless

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PORTLAND, OR
97214



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APE BPM LJB

RFDS REV #: 1 01/04/22

CONSTRUCTION DOCUMENTS

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A&E PROJECT NUMBER

SESEA00297B

DISH Wireless L.L.C.
PROJECT INFORMATION

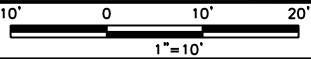
SESEA00297B
10210 NE POINTS DR
KIRKLAND, WA 98033

SHEET TITLE
ELECTRICAL/FIBER ROUTE
PLAN AND NOTES

SHEET NUMBER

E-1

UTILITY ROUTE PLAN



1

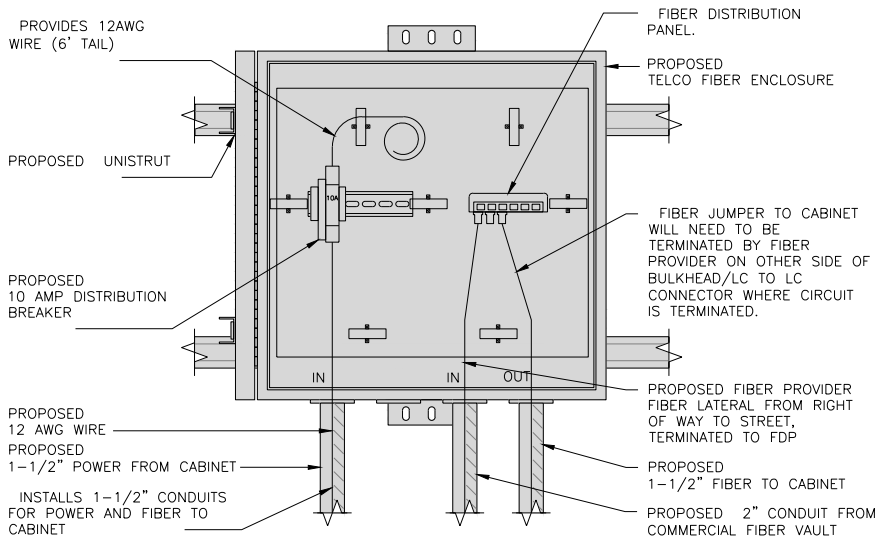
ELECTRICAL NOTES

NO SCALE

2

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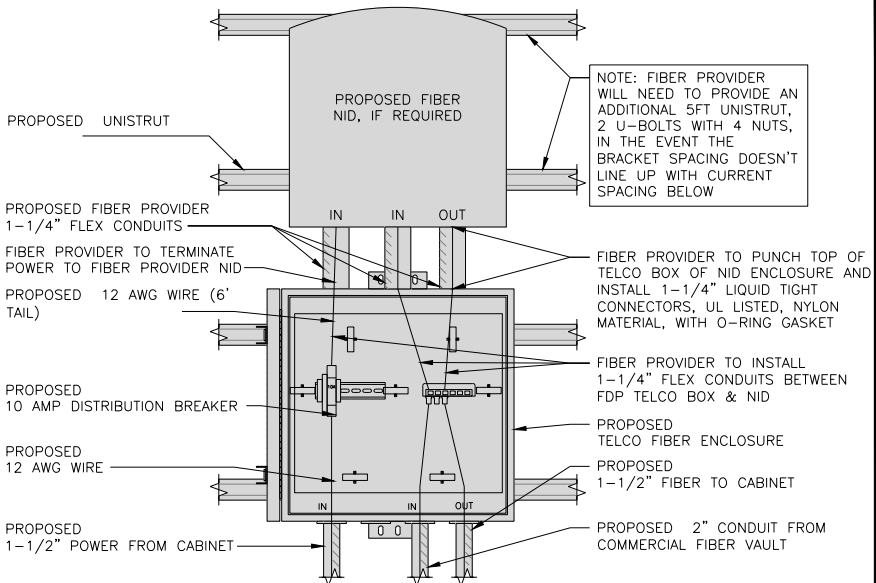
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3. LOCATION OF EQUIPMENT, CONDUIT AND DEVICES SHOWN ON THE DRAWINGS ARE APPROXIMATE AND SHALL BE COORDINATED WITH FIELD CONDITIONS PRIOR TO CONSTRUCTION.
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9. INSTALL AN EQUIPMENT GROUNDING CONDUCTOR IN ALL CONDUITS PER THE SPECIFICATIONS AND NEC 250. THE EQUIPMENT GROUNDING CONDUCTORS SHALL BE BONDED AT ALL JUNCTION BOXES, PULL BOXES, AND ALL DISCONNECT SWITCHES, AND EQUIPMENT CABINETS.
10. ALL NEW MATERIAL SHALL HAVE A U.L. LABEL.
11. PANEL SCHEDULE LOADING AND CIRCUIT ARRANGEMENTS REFLECT POST-CONSTRUCTION EQUIPMENT.
12. CONTRACTOR SHALL BE RESPONSIBLE FOR AS-BUILT PANEL SCHEDULE AND SITE DRAWINGS.



DARK TELCO BOX – INTERIOR WIRING LAYOUT

NO SCALE

2



LIT TELCO BOX – INTERIOR WIRING LAYOUT (OPTIONAL)

NO SCALE

3

ELECTRICAL NOTES

NO SCALE

1

NOT USED

NO SCALE

4

NOT USED

NO SCALE

5

NOT USED

NO SCALE

6

NOT USED

NO SCALE

7

NOT USED

NO SCALE

8



5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120



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PORTLAND, OR
97214



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APE BPM LJB

RFDS REV #: 1 01/04/22

CONSTRUCTION DOCUMENTS

SUBMITTALS		
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A&E PROJECT NUMBER

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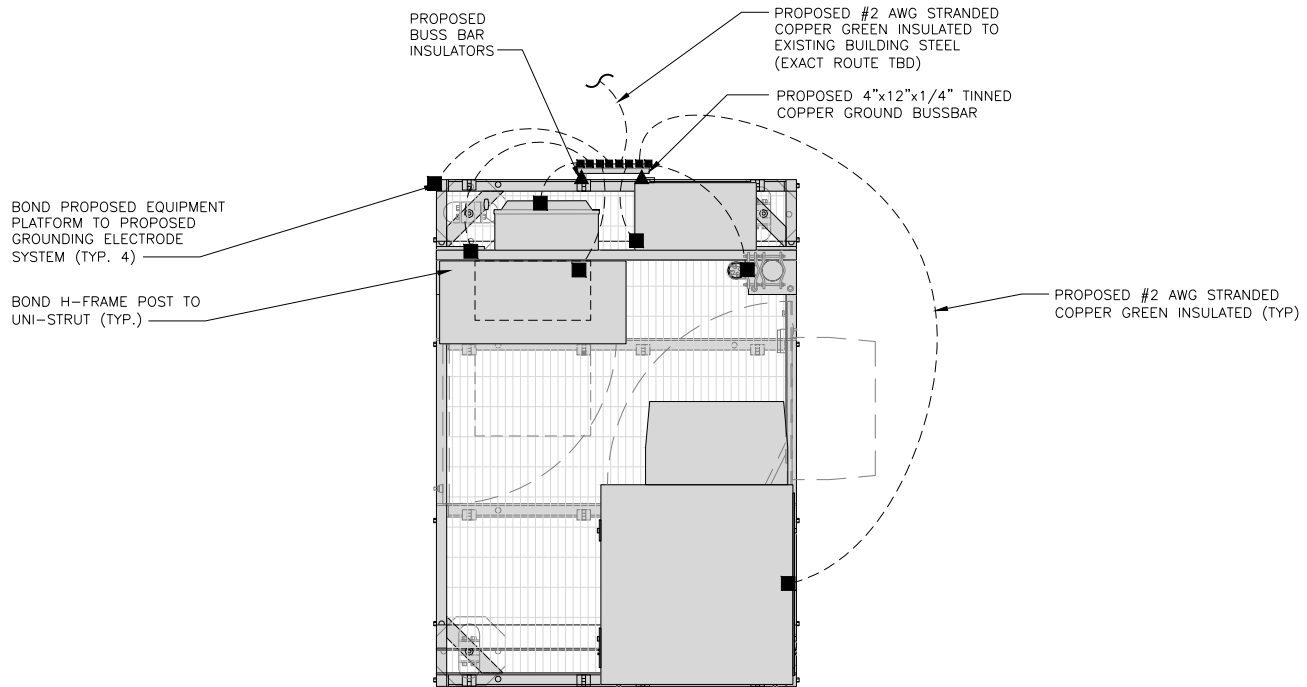
DISH Wireless L.L.C.
PROJECT INFORMATION

SESEA00297B
10210 NE POINTS DR
KIRKLAND, WA 98033

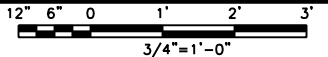
SHEET TITLE
ELECTRICAL
DETAILS

SHEET NUMBER

E-2



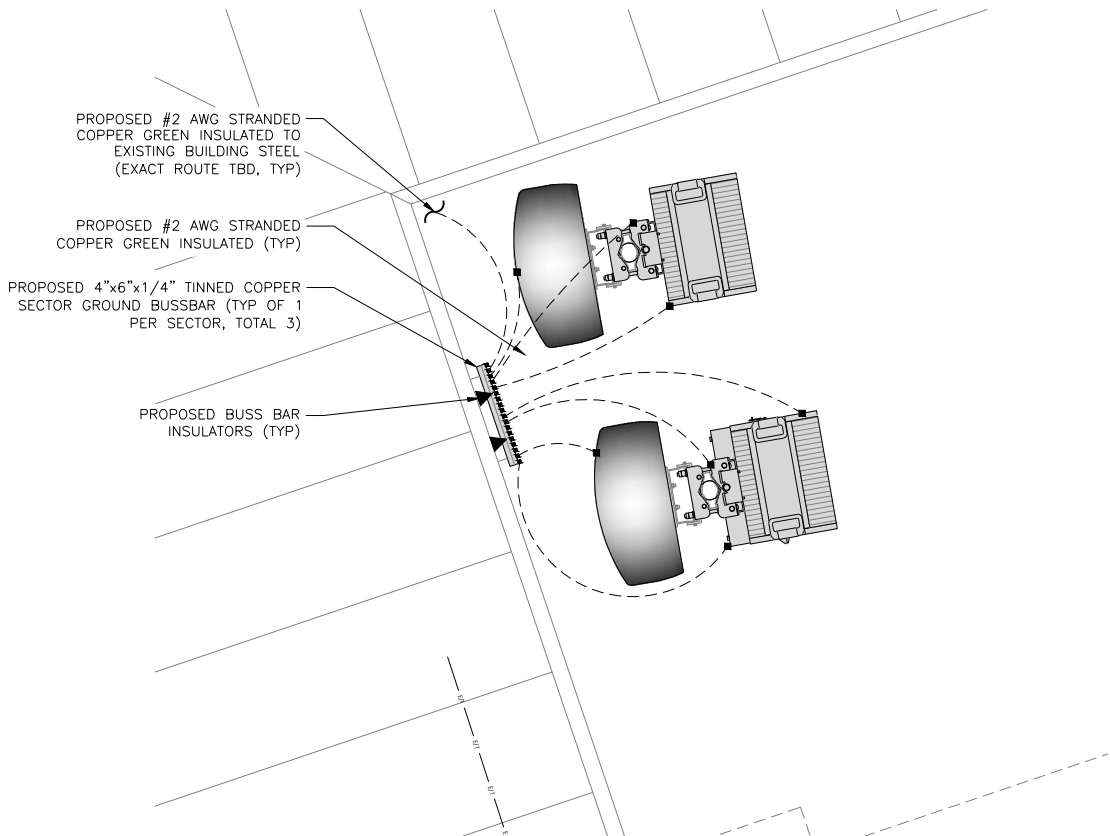
TYPICAL EQUIPMENT GROUNDING PLAN



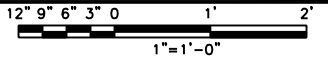
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NOTES

1. ANTENNAS AND OVP SHOWN ARE GENERIC AND NOT REFERENCING TO A SPECIFIC MANUFACTURER. THIS LAYOUT IS FOR REFERENCE ONLY



TYPICAL ANTENNA GROUNDING PLAN



1

- EXOTHERMIC CONNECTION
- MECHANICAL CONNECTION
- — — — — #6 AWG STRANDED & INSULATED
- — — — — #2 AWG SOLID COPPER TINNED
- — — — — BUSS BAR INSULATOR
- — — — — GROUND BUS BAR
- GROUND ROD
- ⬤ TEST GROUND ROD WITH INSPECTION SLEEVE

GROUNDING LEGEND

1. GROUNDING IS SHOWN DIAGRAMMATICALLY ONLY.
2. CONTRACTOR SHALL GROUND ALL EQUIPMENT AS A COMPLETE SYSTEM. GROUNDING SHALL BE IN COMPLIANCE WITH NEC SECTION 250 AND DISH Wireless L.L.C. GROUNDING AND BONDING REQUIREMENTS AND MANUFACTURER'S SPECIFICATIONS.
3. ALL GROUND CONDUCTORS SHALL BE COPPER; NO ALUMINUM CONDUCTORS SHALL BE USED.
4. NO EXOTHERMIC WELDING ON ROOFTOP

GROUNDING ROOFTOP KEY NOTES

- A** EXTERIOR GROUND RING: #2 AWG SOLID COPPER, BURIED AT A DEPTH OF AT LEAST 30 INCHES BELOW GRADE, OR 6 INCHES BELOW THE FROST LINE AND APPROXIMATELY 24 INCHES FROM THE EXTERIOR WALL OR FOOTING.
- B** ROOFTOP GROUND SYSTEM: THE GROUND SYSTEM USING MINIMUM #2 AWG SOLID COPPER CONDUCTORS.
- C** INTERIOR GROUND RING: #2 AWG STRANDED GREEN INSULATED COPPER CONDUCTOR EXTENDED AROUND THE PERIMETER OF THE EQUIPMENT AREA. ALL NON-TELECOMMUNICATIONS RELATED METALLIC OBJECTS FOUND WITHIN A SITE SHALL BE GROUNDED TO THE INTERIOR GROUND RING WITH #6 AWG STRANDED GREEN INSULATED CONDUCTOR.
- D** BOND TO INTERIOR GROUND RING: #2 AWG SOLID TINNED COPPER WIRE PRIMARY BONDS SHALL BE PROVIDED AT LEAST AT FOUR POINTS ON THE INTERIOR GROUND RING, LOCATED AT THE CORNERS OF THE BUILDING OR ROOM.
- E** GROUND ROD: UL LISTED COPPER CLAD STEEL. MINIMUM 1/2" DIAMETER BY EIGHT FEET LONG. GROUND RODS SHALL BE INSTALLED WITH INSPECTION SLEEVES. GROUND RODS SHALL BE DRIVEN TO THE DEPTH OF GROUND RING CONDUCTOR.
- F** CELL REFERENCE GROUND BAR (CRGB): POINT OF GROUND REFERENCE FOR ALL COMMUNICATIONS EQUIPMENT FRAMES. ALL BONDS ARE MADE WITH #2 AWG UNLESS NOTED OTHERWISE STRANDED GREEN INSULATED COPPER CONDUCTORS. BOND TO COMMON BUILDING GROUND SYSTEM WITH (2) #2 SOLID TINNED COPPER CONDUCTORS.
- G** HATCH PLATE GROUND BAR: BOND TO THE COMMON BUILDING GROUND SYSTEM WITH TWO #2 AWG STRANDED GREEN INSULATED COPPER CONDUCTORS. WHEN A HATCH-PLATE AND A CELL REFERENCE GROUND BAR ARE BOTH PRESENT, THE CRGB MUST BE CONNECTED TO THE HATCH-PLATE AND TO THE INTERIOR GROUND RING USING (2) TWO #2 AWG STRANDED GREEN INSULATED COPPER CONDUCTORS EACH.
- H** EXTERIOR CABLE ENTRY PORT GROUND BARS: LOCATED AT THE ENTRANCE TO THE CELL SITE ROOM. BOND TO GROUND RING WITH A #2 AWG SOLID TINNED COPPER CONDUCTORS WITH MECHANICAL CONNECTIONS.
- I** TELCO GROUND BAR: BOND TO BOTH CELL REFERENCE GROUND BAR OR EXTERIOR GROUND RING.
- J** FRAME BONDING: THE BONDING POINT FOR TELECOM EQUIPMENT FRAMES SHALL BE THE GROUND BUS THAT IS NOT ISOLATED FROM THE EQUIPMENTS METAL FRAMEWORK.
- K** INTERIOR UNIT BONDS: METAL FRAMES, CABINETS AND INDIVIDUAL METALLIC UNITS LOCATED WITH THE AREA OF THE INTERIOR GROUND RING REQUIRE A #6 AWG STRANDED GREEN INSULATED COPPER BOND TO THE INTERIOR GROUND RING.
- L** FENCE AND GATE GROUNDING: METAL FENCES SHALL BE BONDED TO THE COMMON BUILDING GROUND SYSTEM WITH A #2 AWG SOLID TINNED COPPER CONDUCTOR AT AN INTERVAL NOT EXCEEDING 25 FEET. BONDS SHALL BE MADE AT EACH GATE POST AND ACROSS GATE OPENINGS.
- M** EXTERIOR UNIT BONDS: METALLIC OBJECTS, EXTERNAL TO OR MOUNTED TO THE BUILDING, SHALL BE BONDED TO THE COMMON BUILDING GROUND SYSTEM. USING #2 TINNED SOLID COPPER WIRE
- N** ICE BRIDGE SUPPORTS: EACH ICE BRIDGE LEG SHALL BE BONDED TO THE GROUND RING WITH #2 AWG BARE TINNED COPPER CONDUCTOR. PROVIDE EXOTHERMIC WELDS AT BOTH THE ICE BRIDGE LEG AND BURIED GROUND RING.
- O** DURING ALL DC POWER SYSTEM CHANGES INCLUDING DC SYSTEM CHANGE OUTS, RECTIFIER REPLACEMENTS OR ADDITIONS, BREAKER DISTRIBUTION CHANGES, BATTERY ADDITIONS, BATTERY REPLACEMENTS AND INSTALLATIONS OR CHANGES TO DC CONVERTER SYSTEMS IT SHALL BE REQUIRED THAT SERVICE CONTRACTORS VERIFY ALL DC POWER SYSTEMS ARE EQUIPPED WITH A MASTER DC SYSTEM RETURN GROUND CONDUCTOR FROM THE DC POWER SYSTEM COMMON RETURN BUS DIRECTLY CONNECTED TO THE CELL SITE REFERENCE GROUND BAR
- P** ROOFTOP COLLECTOR BUSS BAR IS TO BE MECHANICALLY BONDED TO COMMON BUILDING GROUND SYSTEM.

REFER TO DISH Wireless L.L.C. GROUNDING NOTES.

GROUNDING KEY NOTES

NO SCALE

2



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APE	BPM	LJB

RFDS REV #: 1 01/04/22

CONSTRUCTION DOCUMENTS

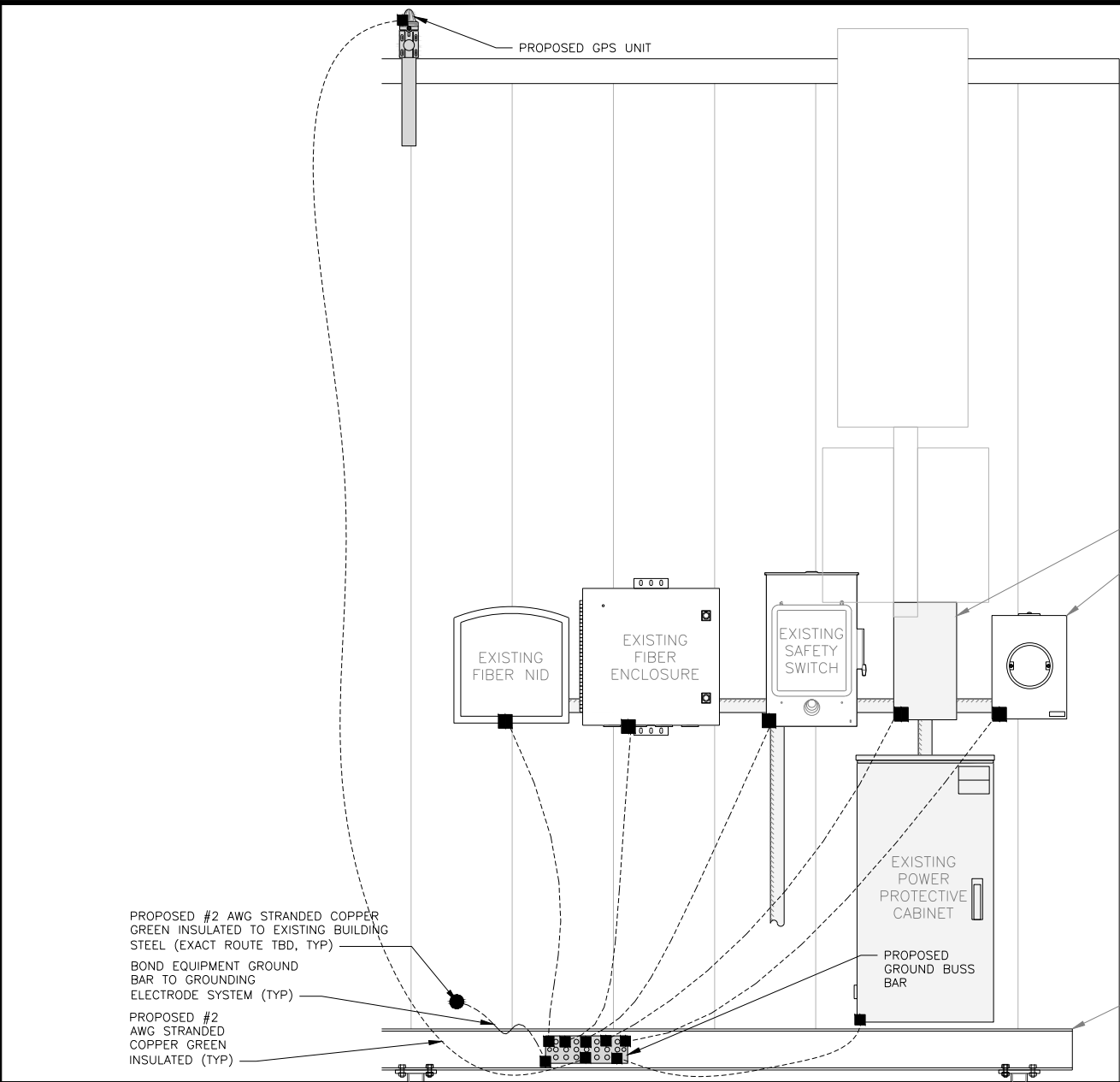
SUBMITTALS		
REV	DATE	DESCRIPTION
△	04.29.2022	90% ZD
△	05.17.2022	90% CD
△	01.13.2023	100% CD

A&E PROJECT NUMBER
SESEA00297B

DISH Wireless L.L.C.
PROJECT INFORMATION
SESEA00297B
10210 NE POINTS DR
KIRKLAND, WA 98033

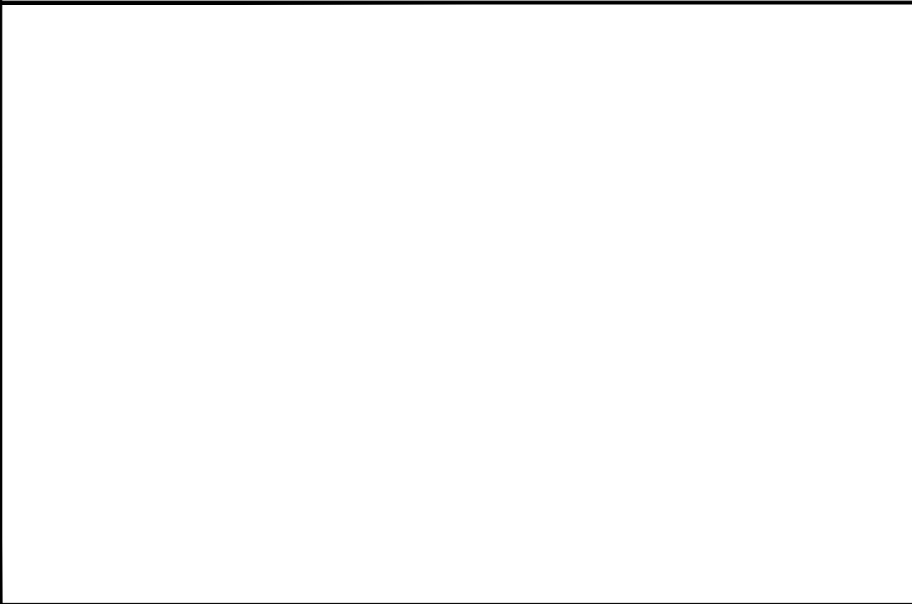
SHEET TITLE
GROUNDING PLANS
AND NOTES

SHEET NUMBER
G-1



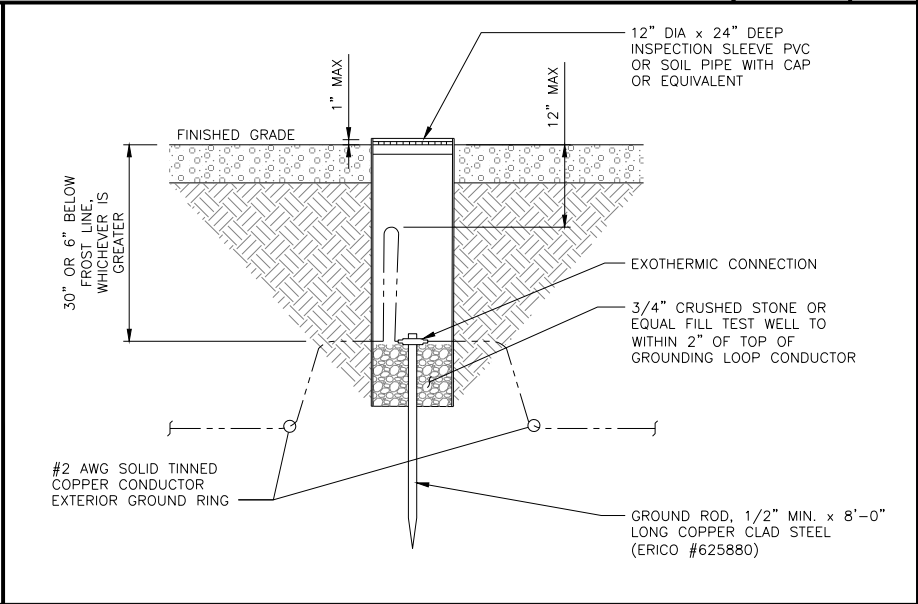
EQUIPMENT ELEVATION GROUNDING DETAIL

NO SCALE 1



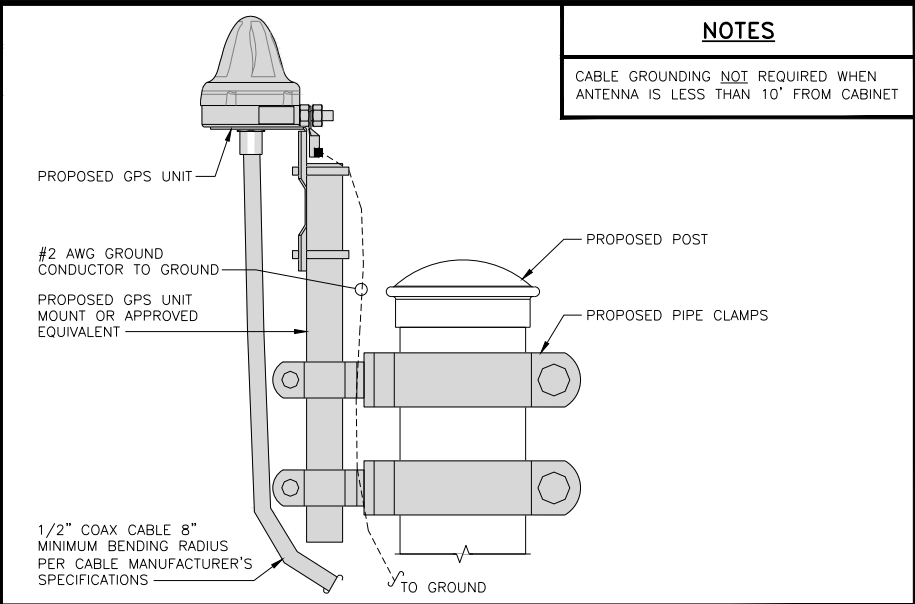
NOT USED

NO SCALE 4



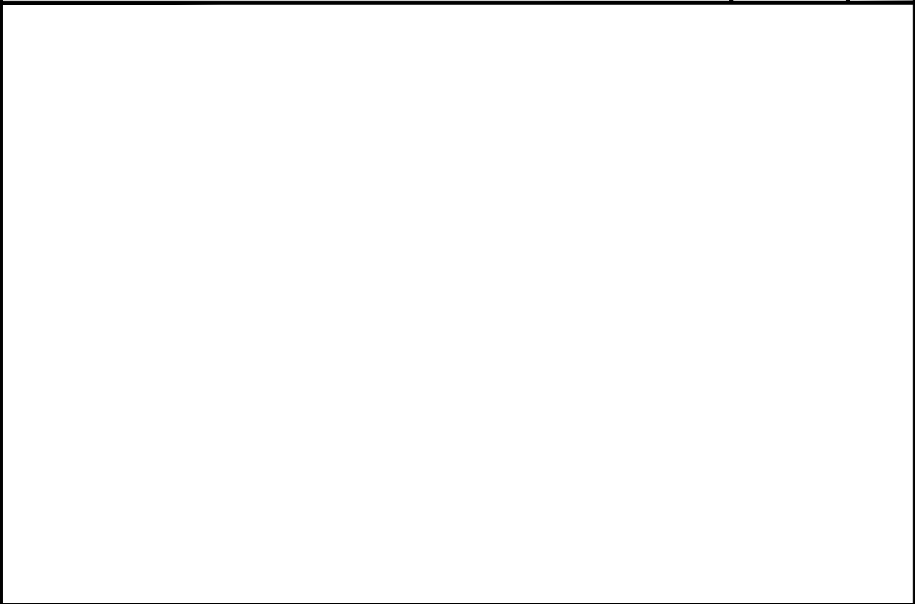
TYPICAL TEST GROUND ROD WITH INSPECTION SLEEVE

NO SCALE 5



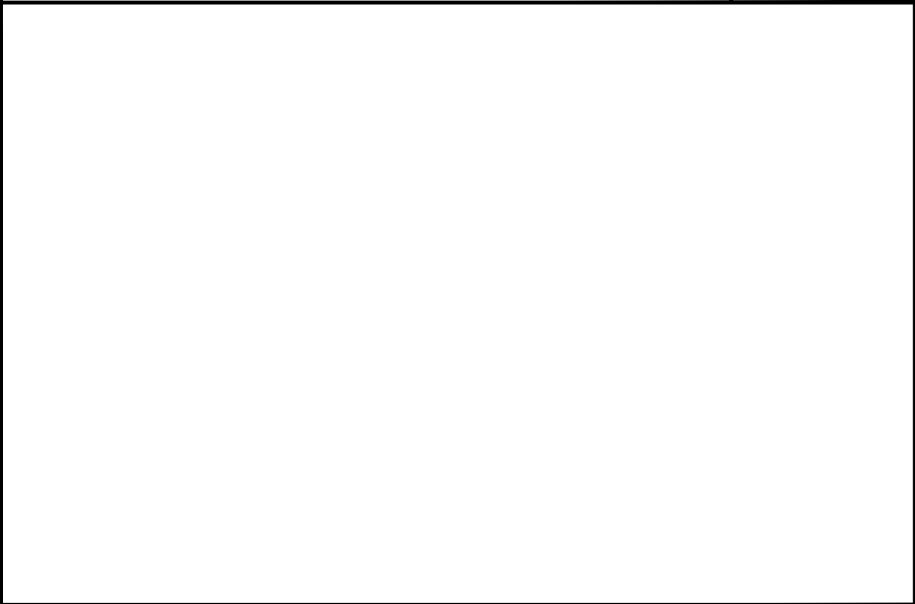
TYPICAL GPS UNIT GROUNDING

NO SCALE 3



NOT USED

NO SCALE 3



NOT USED

NO SCALE 6

NOTES

EQUIPMENT CABINET OMITTED FOR CLARITY

NOTES

CABLE GROUNDING NOT REQUIRED WHEN ANTENNA IS LESS THAN 10' FROM CABINET

dish
wireless™

5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

MODUS

MODUS, LLC
1614 SE 10TH AVE
PORTLAND, OR
97214

PHILLIP J. NEJMAN
STATE OF WASHINGTON
21036072
REGISTERED
PROFESSIONAL ENGINEER

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DRAWN BY:	CHECKED BY:	APPROVED BY:
APE	BPM	LJB

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10210 NE POINTS DR
KIRKLAND, WA 98033

SHEET TITLE
GROUNDING DETAILS

SHEET NUMBER
G-2

1. EXOTHERMIC WELD (2) TWO, #2 AWG BARE TINNED SOLID COPPER CONDUCTORS TO GROUND BAR. ROUTE CONDUCTORS TO BURIED GROUND RING AND PROVIDE PARALLEL EXOTHERMIC WELD.

2. ALL EXTERIOR GROUNDING HARDWARE SHALL BE STAINLESS STEEL 3/8" DIAMETER OR LARGER. ALL HARDWARE 18-8 STAINLESS STEEL INCLUDING LOCK WASHERS, COAT ALL SURFACES WITH AN ANTI-OXIDANT COMPOUND BEFORE MATING.

3. FOR GROUND BOND TO STEEL ONLY: COAT ALL SURFACES WITH AN ANTI-OXIDANT COMPOUND BEFORE MATING.

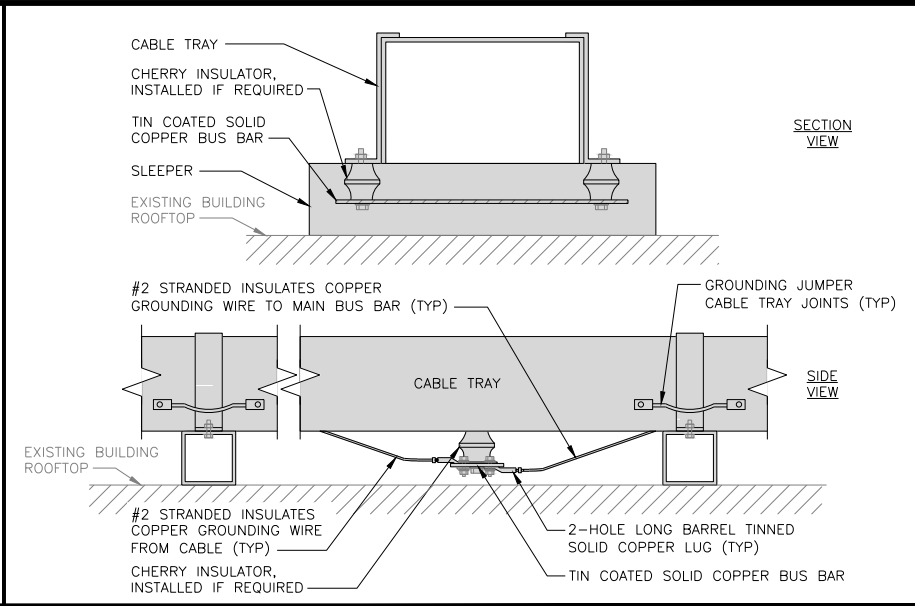
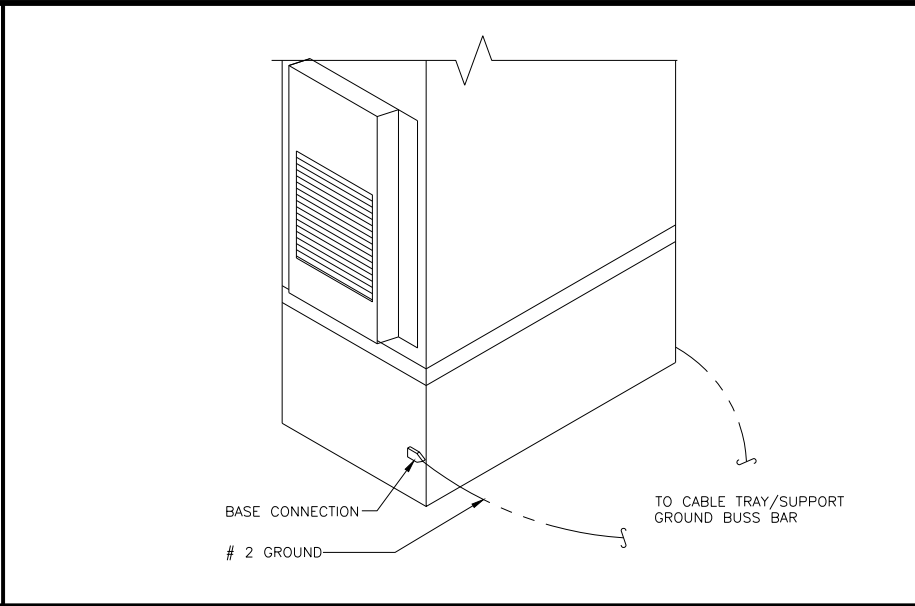
4. DO NOT INSTALL CABLE GROUNDING KIT AT A BEND AND ALWAYS DIRECT GROUND CONDUCTOR DOWN TO GROUNDING BUS.

5. NUT & WASHER SHALL BE PLACED ON THE FRONT SIDE OF THE GROUND BAR AND BOLTED ON THE BACK SIDE.

6. ALL GROUNDING PARTS AND EQUIPMENT TO BE SUPPLIED AND INSTALLED BY CONTRACTOR.

7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLING ADDITIONAL GROUND BAR AS REQUIRED.

8. ENSURE THE WIRE INSULATION TERMINATION IS WITHIN 1/8" OF THE BARREL (NO SHINERS).



TYPICAL GROUNDING NOTES

NO SCALE

1

OUTDOOR CABINET GROUNDING

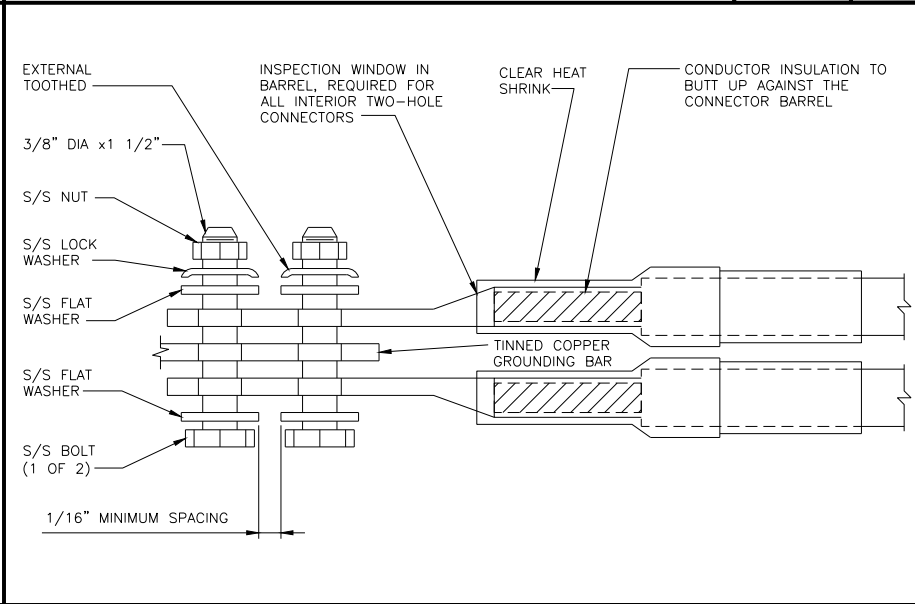
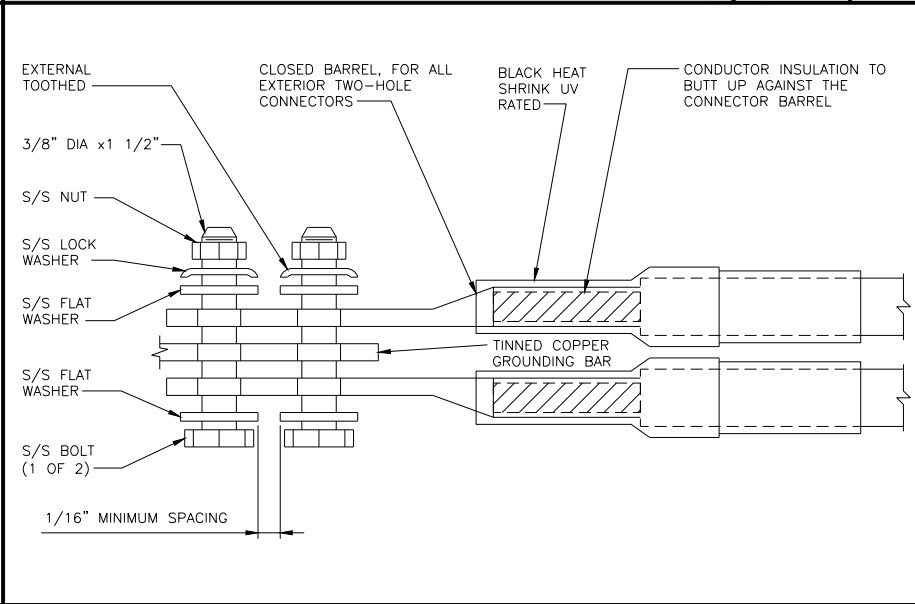
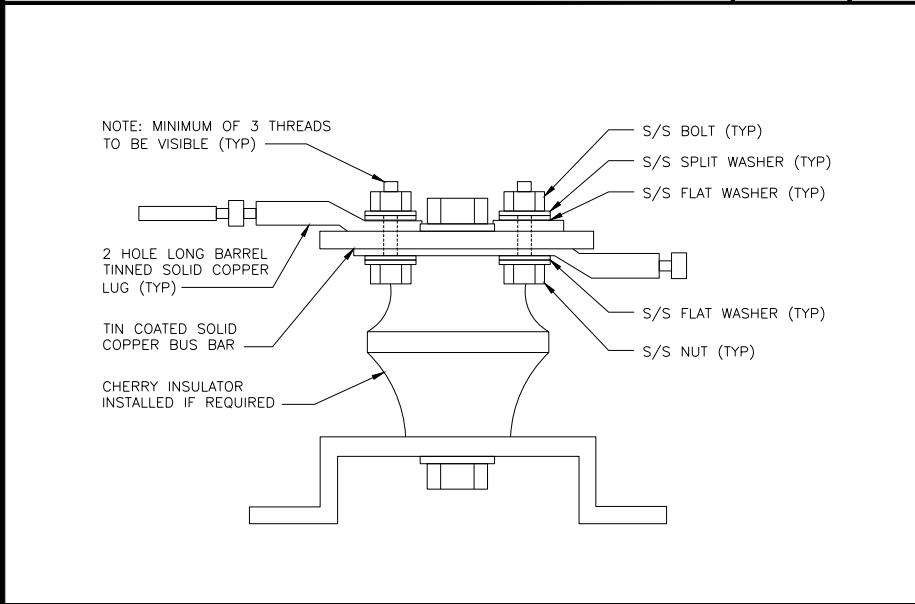
NO SCALE

2

TYPICAL CABLE TRAY GROUND BUSS BAR

NO SCALE

3



LUG DETAIL

NO SCALE

4

TYPICAL EXTERIOR TWO HOLE LUG

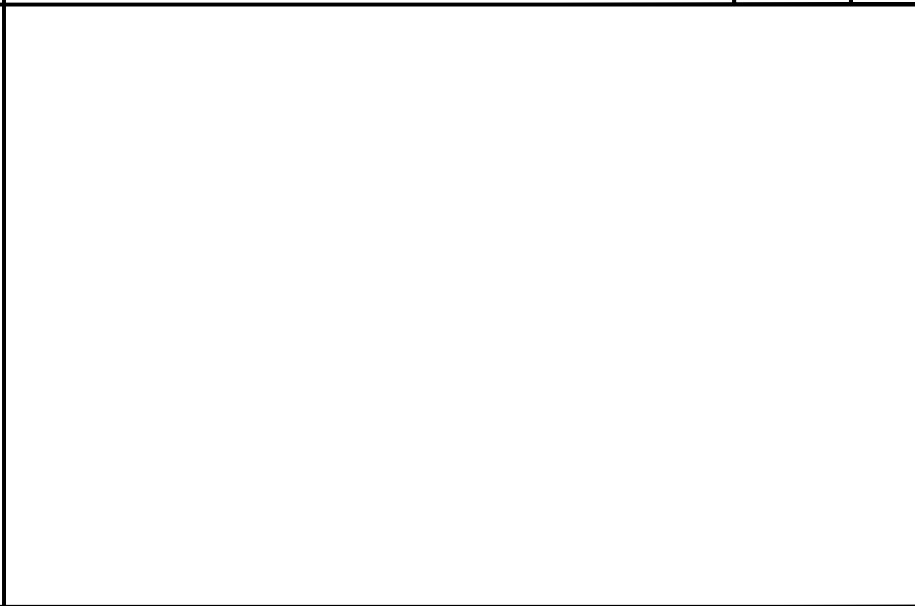
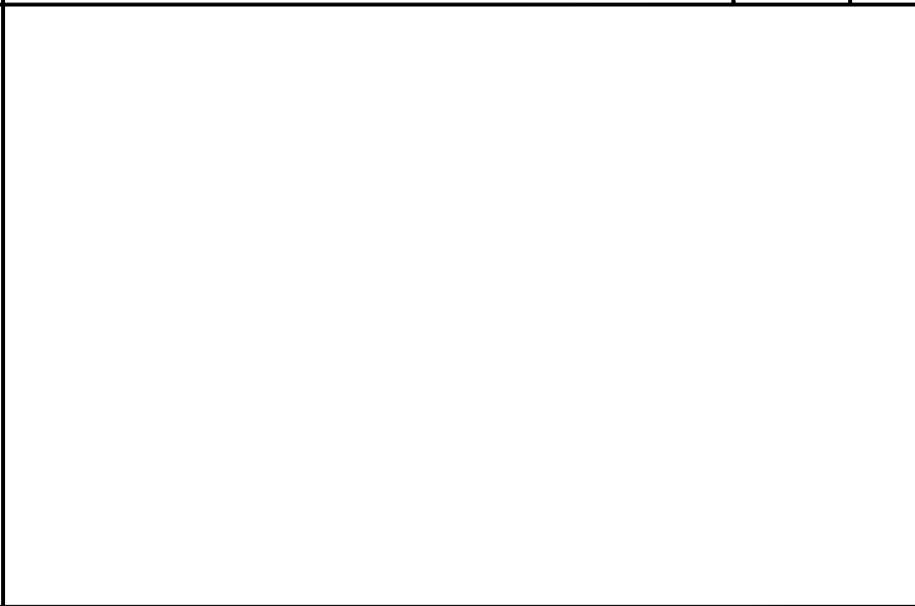
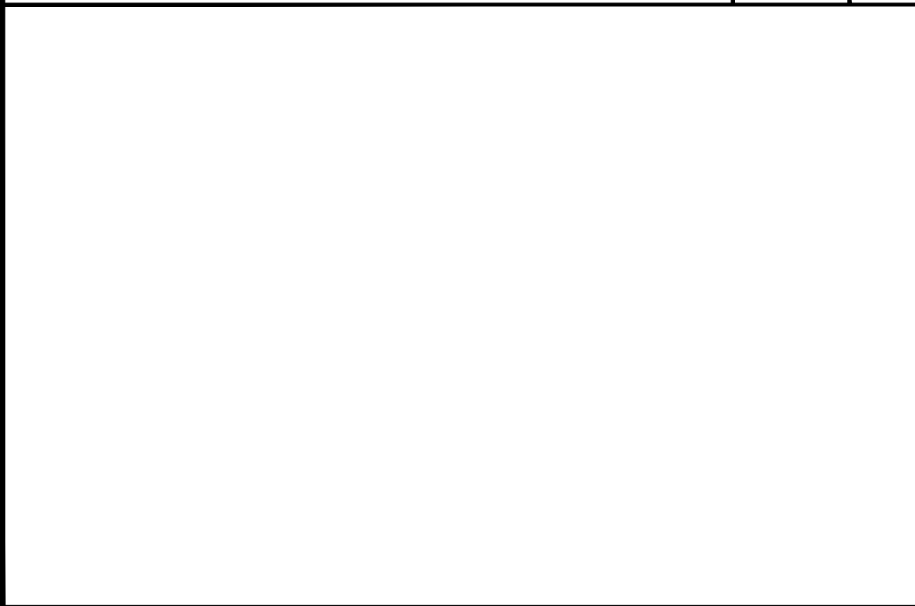
NO SCALE

5

TYPICAL INTERIOR TWO HOLE LUG

NO SCALE

6



NOT USED

NO SCALE

7

NOT USED

NO SCALE

8

NOT USED

NO SCALE

9



5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120



MODUS, LLC
1614 SE 10TH AVE
PORTLAND, OR
97214



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DRAWN BY: CHECKED BY: APPROVED BY:

APE BPM LJB

RFDS REV #: 1 01/04/22

CONSTRUCTION DOCUMENTS

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Δ	05.17.2022	90% CD
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A&E PROJECT NUMBER
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DISH Wireless L.L.C.
PROJECT INFORMATION
SESEA00297B
10210 NE POINTS DR
KIRKLAND, WA 98033

SHEET TITLE
GROUNDING DETAILS

SHEET NUMBER
G-3

RF COLOR CODING

RF Cable Color Codes

Low Bands (N71/N26) Optional - (N29)				AWS (N66/N70+H-block)				CBRS Tech (3 GHz)				Negative Slant Port on Ant/RRH			
ORANGE				PURPLE				YELLOW				WHITE			
RF Jumper Color Coding															
3/4" tape widths with 3/8" spacing															

RF CABLE COLOR CODES

1

NOT USED

4



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CHECKED BY: BPM
APPROVED BY: LJB

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A&E PROJECT NUMBER
SESEA00297B

DISH Wireless L.L.C.
PROJECT INFORMATION

SESEA00297B
10210 NE POINTS DR
KIRKLAND, WA 98033

SHEET TITLE
RF
CABLE COLOR CODE

SHEET NUMBER

RF-1

<div><div>EXOTHERMIC CONNECTION</div><div>MECHANICAL CONNECTION</div><div>BUSS BAR INSULATOR</div><div>CHEMICAL ELECTROLYTIC GROUNDING SYSTEM</div><div>TEST CHEMICAL ELECTROLYTIC GROUNDING SYSTEM</div><div>EXOTHERMIC WITH INSPECTION SLEEVE</div><div>GROUNDING BAR</div><div>GROUND ROD</div><div>TEST GROUND ROD WITH INSPECTION SLEEVE</div><div>SINGLE POLE SWITCH</div><div>DUPLEX RECEPTACLE</div><div>DUPLEX GFCI RECEPTACLE</div><div>FLUORESCENT LIGHTING FIXTURE (2) TWO LAMPS 48-T8</div><div>SMOKE DETECTION (DC)</div><div>EMERGENCY LIGHTING (DC)</div><div>SECURITY LIGHT W/PHOTOCELL LITHONIA ALXW LED-1-25A400/51K-SR4-120-PE-DDBTXD</div><div>CHAIN LINK FENCE</div><div>WOOD/WROUGHT IRON FENCE</div><div>WALL STRUCTURE</div><div>LEASE AREA</div><div>PROPERTY LINE (PL)</div><div>SETBACKS</div><div>ICE BRIDGE</div><div>CABLE TRAY</div><div>WATER LINE</div><div>UNDERGROUND POWER</div><div>UNDERGROUND TELCO</div><div>OVERHEAD POWER</div><div>OVERHEAD TELCO</div><div>UNDERGROUND TELCO/POWER</div><div>ABOVE GROUND POWER</div><div>ABOVE GROUND TELCO</div><div>ABOVE GROUND TELCO/POWER</div><div>WORKPOINT</div><div>SECTION REFERENCE</div><div>DETAIL REFERENCE</div></div> <div><div><div><div>●</div><div>■</div><div>▲</div><div>⦿</div><div>⊗ T</div><div></div><div></div><div></div><div>\$</div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div><div>W.P.</div></div></div> <div><div>ABANCHOR BOLT</div><div>ABVABOVE</div><div>ACALTERNATING CURRENT</div><div>ADDLADDITIONAL</div><div>AFFABOVE FINISHED FLOOR</div><div>AFGABOVE FINISHED GRADE</div><div>AGLABOVE GROUND LEVEL</div><div>AICAMPERAGE INTERRUPTION CAPACITY</div><div>ALUMALUMINUM</div><div>ALTALTERNATE</div><div>ANTANTENNA</div><div>APPROXAPPROXIMATE</div><div>ARCHARCHITECTURAL</div><div>ATSAutomatic Transfer Switch</div><div>AWGAMERICAN WIRE GAUGE</div><div>BATTBATTERY</div><div>BLDGBUILDING</div><div>BLKBLOCK</div><div>BLKGBLOCKING</div><div>BMBeam</div><div>BTCBARE TINNED COPPER CONDUCTOR</div><div>BOFBOTTOM OF FOOTING</div><div>CABCABINET</div><div>CANTCANTILEVERED</div><div>CHGCHARGING</div><div>CLGCCILING</div><div>CLRCLEAR</div><div>COLCOLUMN</div><div>COMMCOMMON</div><div>CONCCONCRETE</div><div>CONSTRCONSTRUCTION</div><div>DBLDOUBLE</div><div>DCDIRECT CURRENT</div><div>DEPTDEPARTMENT</div><div>DFDOUGLAS FIR</div><div>DIA DIAMETER</div><div>DIAGDIAGONAL</div><div>DIMDIMENSION</div><div>DWGDRAWING</div><div>DWLDOWEL</div><div>EAEACH</div><div>ECELECTRICAL CONDUCTOR</div><div>ELELEVATION</div><div>ELECELECTRICAL</div><div>EMTELECTRICAL METALLIC TUBING</div><div>ENGENGINEER</div><div>EQEQUAL</div><div>EXPEXPANSION</div><div>EXTEXTERIOR</div><div>EW EACH WAY</div><div>FABFABRICATION</div><div>FFFINISH FLOOR</div><div>FGFINISH GRADE</div><div>FIFACILITY INTERFACE FRAME</div><div>FINFINISH(ED)</div><div>FLRFLOOR</div><div>FDNFFOUNDATION</div><div>FOCFACE OF CONCRETE</div><div>FOMFACE OF MASONRY</div><div>FOSFACE OF STUD</div><div>FOWFACE OF WALL</div><div>FSFINISH SURFACE</div><div>FTFOOT</div><div>FTGFOOTING</div><div>GAGAUGE</div><div>GENGENERATOR</div><div>GFCIGROUND FAULT CIRCUIT INTERRUPTER</div><div>GLBGLUE LAMINATED BEAM</div><div>GLVGALVANIZED</div><div>GPSGLOBAL POSITIONING SYSTEM</div><div>GNDGROUND</div><div>GSMGLOBAL SYSTEM FOR MOBILE</div><div>HDBGHOT DIPPED GALVANIZED</div><div>HDRHEADER</div><div>HGRHANGER</div><div>HVACHHEAT/VENTILATION/AIR CONDITIONING</div><div>HTHEIGHT</div><div>IGRINTERIOR GROUND RING</div></div> <div><div>ININCH</div><div>INTINTERIOR</div><div>LB(S)POUND(S)</div><div>LFLINEAR FEET</div><div>LTELONG TERM EVOLUTION</div><div>MASMASONRY</div><div>MAXMAXIMUM</div><div>MBMACHINE BOLT</div><div>MECHMECHANICAL</div><div>MFRMANUFACTURER</div><div>MGBMASTER GROUND BAR</div><div>MINMINIMUM</div><div>MISCMISCELLANEOUS</div><div>MTLMETAL</div><div>MTSMANUAL TRANSFER SWITCH</div><div>MWMICROWAVE</div><div>NECNATIONAL ELECTRIC CODE</div><div>NMNEWTON METERS</div><div>NO. NUMBER</div><div>#NUMBER</div><div>NTSNOT TO SCALE</div><div>OC ON-CENTER</div><div>OSHA OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION</div><div>OPNGOPENING</div><div>P/C PRECAST CONCRETE</div><div>PCSPERSONAL COMMUNICATION SERVICES</div><div>PCUPRIMARY CONTROL UNIT</div><div>PRCPRIMARY RADIO CABINET</div><div>PPPOLARIZING PRESERVING</div><div>PSFPOUNDS PER SQUARE FOOT</div><div>PSIPOUNDS PER SQUARE INCH</div><div>PTPRESSURE TREATED</div><div>PWRPOWER CABINET</div><div>QTYQUANTITY</div><div>RADRADIUS</div><div>RECTRECTIFIER</div><div>REFREFERENCE</div><div>REINFREINFORCEMENT</div><div>REQ'DREQUIRED</div><div>RETEREMOTE ELECTRIC TILT</div><div>RF RADIO FREQUENCY</div><div>RMC RIGID METALLIC CONDUIT</div><div>RRH REMOTE RADIO HEAD</div><div>RRUREMOTE RADIO UNIT</div><div>RWY RACEWAY</div><div>SCHSCHEDULE</div><div>SHTSHEET</div><div>SIADSMART INTEGRATED ACCESS DEVICE</div><div>SIMSIMILAR</div><div>SPECSPECIFICATION</div><div>SQSQUARE</div><div>SSSTAINLESS STEEL</div><div>STDSTANDARD</div><div>STLSTEEL</div><div>TEMPTEMPORARY</div><div>THKTHICKNESS</div><div>TMATOWER MOUNTED AMPLIFIER</div><div>TNTOE NAIL</div><div>TOATOP OF ANTENNA</div><div>TOCTOP OF CURB</div><div>TOFTOP OF FOUNDATION</div><div>TOPTOP OF PLATE (PARAPET)</div><div>TOSTOP OF STEEL</div><div>TOWTOP OF WALL</div><div>TVSSTRANSIENT VOLTAGE SURGE SUPPRESSION</div><div>TYP TYPICAL</div><div>UGUNDERGROUND</div><div>ULUNDERWRITERS LABORATORY</div><div>UNO UNLESS NOTED OTHERWISE</div><div>UMTS UNIVERSAL MOBILE TELECOMMUNICATIONS SYSTEM</div><div>UPSUNITERRUPTIBLE POWER SYSTEM (DC POWER PLANT)</div><div>VIFVERIFIED IN FIELD</div><div>WWIDE</div><div>W/WITH</div><div>WDWOOD</div><div>WPWEATHERPROOF</div><div>WTWEIGHT</div></div>
--

LEGEND

ABBREVIATIONS

5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

MODUS, LLC
1614 SE 10TH AVE
PORTLAND, OR
97214

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DRAWN BY: APE

CHECKED BY: BPM

APPROVED BY: LJB

RFDS REV #: 101/04/22

CONSTRUCTION DOCUMENTS

REV	DATE	DESCRIPTION
	04.29.2022	90% ZD
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A&E PROJECT NUMBER
SESEA00297B

DISH Wireless L.L.C.
PROJECT INFORMATION
SESEA00297B
10210 NE POINTS DR
KIRKLAND, WA 98033

SHEET TITLE
LEGEND AND ABBREVIATIONS

SHEET NUMBER
GN-1

DISH Wireless L.L.C. TEMPLATE VERSION 38 – 07/23/2021

BNR23-00595_APPROVED PLANS_03/28/2023_Page 16 of 19

SITE ACTIVITY REQUIREMENTS:

1. NOTICE TO PROCEED – NO WORK SHALL COMMENCE PRIOR TO CONTRACTOR RECEIVING A WRITTEN NOTICE TO PROCEED (NTP) AND THE ISSUANCE OF A PURCHASE ORDER. PRIOR TO ACCESSING/ENTERING THE SITE YOU MUST CONTACT THE DISH Wireless L.L.C. AND TOWER OWNER NOC & THE DISH Wireless L.L.C. AND TOWER OWNER CONSTRUCTION MANAGER.
2. "LOOK UP" – DISH Wireless L.L.C. AND TOWER OWNER SAFETY CLIMB REQUIREMENT:

THE INTEGRITY OF THE SAFETY CLIMB AND ALL COMPONENTS OF THE CLIMBING FACILITY SHALL BE CONSIDERED DURING ALL STAGES OF DESIGN, INSTALLATION, AND INSPECTION. TOWER MODIFICATION, MOUNT REINFORCEMENTS, AND/OR EQUIPMENT INSTALLATIONS SHALL NOT COMPROMISE THE INTEGRITY OR FUNCTIONAL USE OF THE SAFETY CLIMB OR ANY COMPONENTS OF THE CLIMBING FACILITY ON THE STRUCTURE. THIS SHALL INCLUDE, BUT NOT BE LIMITED TO: PINCHING OF THE WIRE ROPE, BENDING OF THE WIRE ROPE FROM ITS SUPPORTS, DIRECT CONTACT OR CLOSE PROXIMITY TO THE WIRE ROPE WHICH MAY CAUSE FRICTIONAL WEAR, IMPACT TO THE ANCHORAGE POINTS IN ANY WAY, OR TO IMPEDE/BLOCK ITS INTENDED USE. ANY COMPROMISED SAFETY CLIMB, INCLUDING EXISTING CONDITIONS MUST BE TAGGED OUT AND REPORTED TO YOUR DISH Wireless L.L.C. AND DISH Wireless L.L.C. AND TOWER OWNER POC OR CALL THE NOC TO GENERATE A SAFETY CLIMB MAINTENANCE AND CONTRACTOR NOTICE TICKET.
3. PRIOR TO THE START OF CONSTRUCTION, ALL REQUIRED JURISDICTIONAL PERMITS SHALL BE OBTAINED. THIS INCLUDES, BUT IS NOT LIMITED TO, BUILDING, ELECTRICAL, MECHANICAL, FIRE, FLOOD ZONE, ENVIRONMENTAL, AND ZONING. AFTER ONSITE ACTIVITIES AND CONSTRUCTION ARE COMPLETED, ALL REQUIRED PERMITS SHALL BE SATISFIED AND CLOSED OUT ACCORDING TO LOCAL JURISDICTIONAL REQUIREMENTS.
4. ALL CONSTRUCTION MEANS AND METHODS; INCLUDING BUT NOT LIMITED TO, ERECTION PLANS, RIGGING PLANS, CLIMBING PLANS, AND RESCUE PLANS SHALL BE THE RESPONSIBILITY OF THE GENERAL CONTRACTOR RESPONSIBLE FOR THE EXECUTION OF THE WORK CONTAINED HEREIN, AND SHALL MEET ANSI/ASSE A10.48 (LATEST EDITION); FEDERAL, STATE, AND LOCAL REGULATIONS; AND ANY APPLICABLE INDUSTRY CONSENSUS STANDARDS RELATED TO THE CONSTRUCTION ACTIVITIES BEING PERFORMED. ALL RIGGING PLANS SHALL ADHERE TO ANSI/ASSE A10.48 (LATEST EDITION) AND DISH Wireless L.L.C. AND TOWER OWNER STANDARDS, INCLUDING THE REQUIRED INVOLVEMENT OF A QUALIFIED ENGINEER FOR CLASS IV CONSTRUCTION, TO CERTIFY THE SUPPORTING STRUCTURE(S) IN ACCORDANCE WITH ANSI/TIA–322 (LATEST EDITION).
5. ALL SITE WORK TO COMPLY WITH DISH Wireless L.L.C. AND TOWER OWNER INSTALLATION STANDARDS FOR CONSTRUCTION ACTIVITIES ON DISH Wireless L.L.C. AND TOWER OWNER TOWER SITE AND LATEST VERSION OF ANSI/TIA–1019–A–2012 "STANDARD FOR INSTALLATION, ALTERATION, AND MAINTENANCE OF ANTENNA SUPPORTING STRUCTURES AND ANTENNAS."
6. IF THE SPECIFIED EQUIPMENT CAN NOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE CONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION FOR APPROVAL BY DISH Wireless L.L.C. AND TOWER OWNER PRIOR TO PROCEEDING WITH ANY SUCH CHANGE OF INSTALLATION.
7. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS AND ORDINANCES. CONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.
8. THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER’S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
9. THE CONTRACTOR SHALL CONTACT UTILITY LOCATING SERVICES INCLUDING PRIVATE LOCATES SERVICES PRIOR TO THE START OF CONSTRUCTION.
10. ALL EXISTING ACTIVE SEWER, WATER, GAS, ELECTRIC AND OTHER UTILITIES WHERE ENCOUNTERED IN THE WORK, SHALL BE PROTECTED AT ALL TIMES AND WHERE REQUIRED FOR THE PROPER EXECUTION OF THE WORK, SHALL BE RELOCATED AS DIRECTED BY CONTRACTOR. EXTREME CAUTION SHOULD BE USED BY THE CONTRACTOR WHEN EXCAVATING OR DRILLING PIERS AROUND OR NEAR UTILITIES. CONTRACTOR SHALL PROVIDE SAFETY TRAINING FOR THE WORKING CREW. THIS WILL INCLUDE BUT NOT BE LIMITED TO A) FALL PROTECTION B) CONFINED SPACE C) ELECTRICAL SAFETY D) TRENCHING AND EXCAVATION E) CONSTRUCTION SAFETY PROCEDURES.
11. ALL SITE WORK SHALL BE AS INDICATED ON THE STAMPED CONSTRUCTION DRAWINGS AND DISH PROJECT SPECIFICATIONS, LATEST APPROVED REVISION.
12. CONTRACTOR SHALL KEEP THE SITE FREE FROM ACCUMULATING WASTE MATERIAL, DEBRIS, AND TRASH AT THE COMPLETION OF THE WORK. IF NECESSARY, RUBBISH, STUMPS, DEBRIS, STICKS, STONES AND OTHER REFUSE SHALL BE REMOVED FROM THE SITE AND DISPOSED OF LEGALLY.
13. ALL EXISTING INACTIVE SEWER, WATER, GAS, ELECTRIC AND OTHER UTILITIES, WHICH INTERFERE WITH THE EXECUTION OF THE WORK, SHALL BE REMOVED AND/OR CAPPED, PLUGGED OR OTHERWISE DISCONTINUED AT POINTS WHICH WILL NOT INTERFERE WITH THE EXECUTION OF THE WORK, SUBJECT TO THE APPROVAL OF DISH Wireless L.L.C. AND TOWER OWNER, AND/OR LOCAL UTILITIES.
14. THE CONTRACTOR SHALL PROVIDE SITE SIGNAGE IN ACCORDANCE WITH THE TECHNICAL SPECIFICATION FOR SITE SIGNAGE REQUIRED BY LOCAL JURISDICTION AND SIGNAGE REQUIRED ON INDIVIDUAL PIECES OF EQUIPMENT, ROOMS, AND SHELTERS.
15. THE SITE SHALL BE GRADED TO CAUSE SURFACE WATER TO FLOW AWAY FROM THE CARRIER’S EQUIPMENT AND TOWER AREAS.
16. THE SUB GRADE SHALL BE COMPACTED AND BROUGHT TO A SMOOTH UNIFORM GRADE PRIOR TO FINISHED SURFACE APPLICATION.
17. THE AREAS OF THE OWNERS PROPERTY DISTURBED BY THE WORK AND NOT COVERED BY THE TOWER, EQUIPMENT OR DRIVEWAY, SHALL BE GRADED TO A UNIFORM SLOPE, AND STABILIZED TO PREVENT EROSION AS SPECIFIED ON THE CONSTRUCTION DRAWINGS AND/OR PROJECT SPECIFICATIONS.
18. CONTRACTOR SHALL MINIMIZE DISTURBANCE TO EXISTING SITE DURING CONSTRUCTION. EROSION CONTROL MEASURES, IF REQUIRED DURING CONSTRUCTION, SHALL BE IN CONFORMANCE WITH THE LOCAL GUIDELINES FOR EROSION AND SEDIMENT CONTROL.
19. THE CONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT CONTRACTOR’S EXPENSE TO THE SATISFACTION OF OWNER.
20. CONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OF ALL SCRAP MATERIALS SUCH AS COAXIAL CABLES AND OTHER ITEMS REMOVED FROM THE EXISTING FACILITY. ANTENNAS AND RADIOS REMOVED SHALL BE RETURNED TO THE OWNER’S DESIGNATED LOCATION.
21. CONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION. TRASH AND DEBRIS SHOULD BE REMOVED FROM SITE ON A DAILY BASIS.
22. NO FILL OR EMBANKMENT MATERIAL SHALL BE PLACED ON FROZEN GROUND. FROZEN MATERIALS, SNOW OR ICE SHALL NOT BE PLACED IN ANY FILL OR EMBANKMENT.

GENERAL NOTES:

- 1.FOR THE PURPOSE OF CONSTRUCTION DRAWING, THE FOLLOWING DEFINITIONS SHALL APPLY:

CONTRACTOR:GENERAL CONTRACTOR RESPONSIBLE FOR CONSTRUCTION

CARRIER:DISH Wireless L.L.C.

TOWER OWNER:TOWER OWNER
2. THESE DRAWINGS HAVE BEEN PREPARED USING STANDARDS OF PROFESSIONAL CARE AND COMPLETENESS NORMALLY EXERCISED UNDER SIMILAR CIRCUMSTANCES BY REPUTABLE ENGINEERS IN THIS OR SIMILAR LOCALITIES. IT IS ASSUMED THAT THE WORK DEPICTED WILL BE PERFORMED BY AN EXPERIENCED CONTRACTOR AND/OR WORKPEOPLE WHO HAVE A WORKING KNOWLEDGE OF THE APPLICABLE CODE STANDARDS AND REQUIREMENTS AND OF INDUSTRY ACCEPTED STANDARD GOOD PRACTICE. AS NOT EVERY CONDITION OR ELEMENT IS (OR CAN BE) EXPLICITLY SHOWN ON THESE DRAWINGS, THE CONTRACTOR SHALL USE INDUSTRY ACCEPTED STANDARD GOOD PRACTICE FOR MISCELLANEOUS WORK NOT EXPLICITLY SHOWN.
3. THESE DRAWINGS REPRESENT THE FINISHED STRUCTURE. THEY DO NOT INDICATE THE MEANS OR METHODS OF CONSTRUCTION. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR THE CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, AND PROCEDURES. THE CONTRACTOR SHALL PROVIDE ALL MEASURES NECESSARY FOR PROTECTION OF LIFE AND PROPERTY DURING CONSTRUCTION. SUCH MEASURES SHALL INCLUDE, BUT NOT BE LIMITED TO, BRACING, FORMWORK, SHORING, ETC. SITE VISITS BY THE ENGINEER OR HIS REPRESENTATIVE WILL NOT INCLUDE INSPECTION OF THESE ITEMS AND IS FOR STRUCTURAL OBSERVATION OF THE FINISHED STRUCTURE ONLY.
4. NOTES AND DETAILS IN THE CONSTRUCTION DRAWINGS SHALL TAKE PRECEDENCE OVER GENERAL NOTES AND TYPICAL DETAILS. WHERE NO DETAILS ARE SHOWN, CONSTRUCTION SHALL CONFORM TO SIMILAR WORK ON THE PROJECT, AND/OR AS PROVIDED FOR IN THE CONTRACT DOCUMENTS. WHERE DISCREPANCIES OCCUR BETWEEN PLANS, DETAILS, GENERAL NOTES, AND SPECIFICATIONS, THE GREATER, MORE STRICT REQUIREMENTS, SHALL GOVERN. IF FURTHER CLARIFICATION IS REQUIRED CONTACT THE ENGINEER OF RECORD.
5. SUBSTANTIAL EFFORT HAS BEEN MADE TO PROVIDE ACCURATE DIMENSIONS AND MEASUREMENTS ON THE DRAWINGS TO ASSIST IN THE FABRICATION AND/OR PLACEMENT OF CONSTRUCTION ELEMENTS BUT IT IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO FIELD VERIFY THE DIMENSIONS, MEASUREMENTS, AND/OR CLEARANCES SHOWN IN THE CONSTRUCTION DRAWINGS PRIOR TO FABRICATION OR CUTTING OF ANY NEW OR EXISTING CONSTRUCTION ELEMENTS. IF IT IS DETERMINED THAT THERE ARE DISCREPANCIES AND/OR CONFLICTS WITH THE CONSTRUCTION DRAWINGS THE ENGINEER OF RECORD IS TO BE NOTIFIED AS SOON AS POSSIBLE.
6. PRIOR TO THE SUBMISSION OF BIDS, THE BIDDING CONTRACTOR SHALL VISIT THE CELL SITE TO FAMILIARIZE WITH THE EXISTING CONDITIONS AND TO CONFIRM THAT THE WORK CAN BE ACCOMPLISHED AS SHOWN ON THE CONSTRUCTION DRAWINGS. ANY DISCREPANCY FOUND SHALL BE BROUGHT TO THE ATTENTION OF CARRIER POC AND TOWER OWNER.
7. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS AND ORDINANCES. CONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.
8. UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.
9. THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER’S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
10. IF THE SPECIFIED EQUIPMENT CAN NOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE CONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION FOR APPROVAL BY THE CARRIER AND TOWER OWNER PRIOR TO PROCEEDING WITH ANY SUCH CHANGE OF INSTALLATION.
11. CONTRACTOR IS TO PERFORM A SITE INVESTIGATION, BEFORE SUBMITTING BIDS, TO DETERMINE THE BEST ROUTING OF ALL CONDUITS FOR POWER, AND TELCO AND FOR GROUNDING CABLES AS SHOWN IN THE POWER, TELCO, AND GROUNDING PLAN DRAWINGS.
12. THE CONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT CONTRACTOR’S EXPENSE TO THE SATISFACTION OF DISH Wireless L.L.C. AND TOWER OWNER
13. CONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OF ALL SCRAP MATERIALS SUCH AS COAXIAL CABLES AND OTHER ITEMS REMOVED FROM THE EXISTING FACILITY. ANTENNAS REMOVED SHALL BE RETURNED TO THE OWNER’S DESIGNATED LOCATION.
14. CONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION. TRASH AND DEBRIS SHOULD BE REMOVED FROM SITE ON A DAILY BASIS.



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DRAWN BY: CHECKED BY:APPROVED BY:

APE BPM LJB

RFDS REV #: 1 01/04/22

CONSTRUCTION DOCUMENTS

SUBMITTALS		
REV	DATE	DESCRIPTION
	04.29.2022	90% ZD
	05.17.2022	90% CD
	01.13.2023	100% CD

A&E PROJECT NUMBER
SESEA00297B

DISH Wireless L.L.C.
PROJECT INFORMATION

SESEA00297B
10210 NE POINTS DR
KIRKLAND, WA 98033

SHEET TITLE
GENERAL NOTES

SHEET NUMBER
GN-2

CONCRETE, FOUNDATIONS, AND REINFORCING STEEL:

1. ALL CONCRETE WORK SHALL BE IN ACCORDANCE WITH THE ACI 301, ACI 318, ACI 336, ASTM A184, ASTM A185 AND THE DESIGN AND CONSTRUCTION SPECIFICATION FOR CAST-IN-PLACE CONCRETE.
2. UNLESS NOTED OTHERWISE, SOIL BEARING PRESSURE USED FOR DESIGN OF SLABS AND FOUNDATIONS IS ASSUMED TO BE 1000 psf.
3. ALL CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH (f'c) OF 3000 psi AT 28 DAYS, UNLESS NOTED OTHERWISE. NO MORE THAN 90 MINUTES SHALL ELAPSE FROM BATCH TIME TO TIME OF PLACEMENT UNLESS APPROVED BY THE ENGINEER OF RECORD. TEMPERATURE OF CONCRETE SHALL NOT EXCEED 90°f AT TIME OF PLACEMENT.
4. CONCRETE EXPOSED TO FREEZE-THAW CYCLES SHALL CONTAIN AIR ENTRAINING ADMIXTURES. AMOUNT OF AIR ENTRAINMENT TO BE BASED ON SIZE OF AGGREGATE AND F3 CLASS EXPOSURE (VERY SEVERE). CEMENT USED TO BE TYPE II PORTLAND CEMENT WITH A MAXIMUM WATER-TO-CEMENT RATIO (W/C) OF 0.45.
5. ALL STEEL REINFORCING SHALL CONFORM TO ASTM A615. ALL WELDED WIRE FABRIC (WWF) SHALL CONFORM TO ASTM A185. ALL SPLICES SHALL BE CLASS "B" TENSION SPLICES, UNLESS NOTED OTHERWISE. ALL HOOKS SHALL BE STANDARD 90 DEGREE HOOKS, UNLESS NOTED OTHERWISE. YIELD STRENGTH (Fy) OF STANDARD DEFORMED BARS ARE AS FOLLOWS:

#4 BARS AND SMALLER 40 ksi

#5 BARS AND LARGER 60 ksi
6. THE FOLLOWING MINIMUM CONCRETE COVER SHALL BE PROVIDED FOR REINFORCING STEEL UNLESS SHOWN OTHERWISE ON DRAWINGS:

• CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH 3"

• CONCRETE EXPOSED TO EARTH OR WEATHER:

• #6 BARS AND LARGER 2"

• #5 BARS AND SMALLER 1-1/2"

• CONCRETE NOT EXPOSED TO EARTH OR WEATHER:

• SLAB AND WALLS 3/4"

• BEAMS AND COLUMNS 1-1/2"

7. A TOOLED EDGE OR A 3/4" CHAMFER SHALL BE PROVIDED AT ALL EXPOSED EDGES OF CONCRETE, UNLESS NOTED OTHERWISE, IN ACCORDANCE WITH ACI 301 SECTION 4.2.4.
- ELECTRICAL INSTALLATION NOTES:
1. ALL ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS, NEC AND ALL APPLICABLE FEDERAL, STATE, AND LOCAL CODES/ORDINANCES.

2. CONDUIT ROUTINGS ARE SCHEMATIC. CONTRACTOR SHALL INSTALL CONDUITS SO THAT ACCESS TO EQUIPMENT IS NOT BLOCKED AND TRIP HAZARDS ARE ELIMINATED.

3. WIRING, RACEWAY AND SUPPORT METHODS AND MATERIALS SHALL COMPLY WITH THE REQUIREMENTS OF THE NEC.

4. ALL CIRCUITS SHALL BE SEGREGATED AND MAINTAIN MINIMUM CABLE SEPARATION AS REQUIRED BY THE NEC.

4.1. ALL EQUIPMENT SHALL BEAR THE UNDERWRITERS LABORATORIES LABEL OF APPROVAL, AND SHALL CONFORM TO REQUIREMENT OF THE NATIONAL ELECTRICAL CODE.

4.2. ALL OVERCURRENT DEVICES SHALL HAVE AN INTERRUPTING CURRENT RATING THAT SHALL BE GREATER THAN THE SHORT CIRCUIT CURRENT TO WHICH THEY ARE SUBJECTED, 22,000 AIC MINIMUM. VERIFY AVAILABLE SHORT CIRCUIT CURRENT DOES NOT EXCEED THE RATING OF ELECTRICAL EQUIPMENT IN ACCORDANCE WITH ARTICLE 110.24 NEC OR THE MOST CURRENT ADOPTED CODE PRE THE GOVERNING JURISDICTION.

5. EACH END OF EVERY POWER PHASE CONDUCTOR, GROUNDING CONDUCTOR, AND TELCO CONDUCTOR OR CABLE SHALL BE LABELED WITH COLOR-CODED INSULATION OR ELECTRICAL TAPE (3M BRAND, 1/2" PLASTIC ELECTRICAL TAPE WITH UV PROTECTION, OR EQUAL). THE IDENTIFICATION METHOD SHALL CONFORM WITH NEC AND OSHA.

6. ALL ELECTRICAL COMPONENTS SHALL BE CLEARLY LABELED WITH LAMICOID TAGS SHOWING THEIR RATED VOLTAGE, PHASE CONFIGURATION, WIRE CONFIGURATION, POWER OR AMPACITY RATING AND BRANCH CIRCUIT ID NUMBERS (i.e. PANEL BOARD AND CIRCUIT ID'S).

7. PANEL BOARDS (ID NUMBERS) SHALL BE CLEARLY LABELED WITH PLASTIC LABELS.

8. TIE WRAPS ARE NOT ALLOWED.

9. ALL POWER AND EQUIPMENT GROUND WIRING IN TUBING OR CONDUIT SHALL BE SINGLE COPPER CONDUCTOR (#14 OR LARGER) WITH TYPE THHW, THWN, THWN-2, XHHW, XHHW-2, THW, THW-2, RHW, OR RHW-2 INSULATION UNLESS OTHERWISE SPECIFIED.

10. SUPPLEMENTAL EQUIPMENT GROUND WIRING LOCATED INDOORS SHALL BE SINGLE COPPER CONDUCTOR (#6 OR LARGER) WITH TYPE THHW, THWN, THWN-2, XHHW, XHHW-2, THW, THW-2, RHW, OR RHW-2 INSULATION UNLESS OTHERWISE SPECIFIED.

11. POWER AND CONTROL WIRING IN FLEXIBLE CORD SHALL BE MULTI-CONDUCTOR, TYPE SOOW CORD (#14 OR LARGER) UNLESS OTHERWISE SPECIFIED.

12. POWER AND CONTROL WIRING FOR USE IN CABLE TRAY SHALL BE MULTI-CONDUCTOR, TYPE TC CABLE (#14 OR LARGER), WITH TYPE THHW, THWN, THWN-2, XHHW, XHHW-2, THW, THW-2, RHW, OR RHW-2 INSULATION UNLESS OTHERWISE SPECIFIED.

13. ALL POWER AND GROUNDING CONNECTIONS SHALL BE CRIMP-STYLE, COMPRESSION WIRE LUGS AND WIRE NUTS BY THOMAS AND BETTS (OR EQUAL). LUGS AND WIRE NUTS SHALL BE RATED FOR OPERATION NOT LESS THAN 75° C (90° C IF AVAILABLE).

14. RACEWAY AND CABLE TRAY SHALL BE LISTED OR LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSI/IEEE AND NEC.

15. ELECTRICAL METALLIC TUBING (EMT), INTERMEDIATE METAL CONDUIT (IMC), OR RIGID METAL CONDUIT (RMC) SHALL BE USED FOR EXPOSED INDOOR LOCATIONS.
16. ELECTRICAL METALLIC TUBING (EMT) OR METAL-CLAD CABLE (MC) SHALL BE USED FOR CONCEALED INDOOR LOCATIONS.

17. SCHEDULE 40 PVC UNDERGROUND ON STRAIGHTS AND SCHEDULE 80 PVC FOR ALL ELBOWS/90s AND ALL APPROVED ABOVE GRADE PVC CONDUIT.

18. LIQUID-TIGHT FLEXIBLE METALLIC CONDUIT (LIQUID-TITE FLEX) SHALL BE USED INDOORS AND OUTDOORS, WHERE VIBRATION OCCURS OR FLEXIBILITY IS NEEDED.

19. CONDUIT AND TUBING FITTINGS SHALL BE THREADED OR COMPRESSION-TYPE AND APPROVED FOR THE LOCATION USED. SET SCREW FITTINGS ARE NOT ACCEPTABLE.

20. CABINETS, BOXES AND WIRE WAYS SHALL BE LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSI/IEEE AND THE NEC.

21. WIREWAYS SHALL BE METAL WITH AN ENAMEL FINISH AND INCLUDE A HINGED COVER, DESIGNED TO SWING OPEN DOWNWARDS (WIREMOLD SPECMATE WIREWAY).

22. SLOTTED WIRING DUCT SHALL BE PVC AND INCLUDE COVER (PANDUIT TYPE E OR EQUAL).

23. CONDUITS SHALL BE FASTENED SECURELY IN PLACE WITH APPROVED NON-PERFORATED STRAPS AND HANGERS. EXPLOSIVE DEVICES (i.e. POWDER-ACTUATED) FOR ATTACHING HANGERS TO STRUCTURE WILL NOT BE PERMITTED. CLOSELY FOLLOW THE LINES OF THE STRUCTURE, MAINTAIN CLOSE PROXIMITY TO THE STRUCTURE AND KEEP CONDUITS IN TIGHT ENVELOPES. CHANGES IN DIRECTION TO ROUTE AROUND OBSTACLES SHALL BE MADE WITH CONDUIT OUTLET BODIES. CONDUIT SHALL BE INSTALLED IN A NEAT AND WORKMANLIKE MANNER. PARALLEL AND PERPENDICULAR TO STRUCTURE WALL AND CEILING LINES. ALL CONDUIT SHALL BE FISHED TO CLEAR OBSTRUCTIONS. ENDS OF CONDUITS SHALL BE TEMPORARILY CAPPED FLUSH TO FINISH GRADE TO PREVENT CONCRETE, PLASTER OR DIRT FROM ENTERING. CONDUITS SHALL BE RIGIDLY CLAMPED TO BOXES BY GALVANIZED MALLEABLE IRON BUSHING ON INSIDE AND GALVANIZED MALLEABLE IRON LOCKNUT ON OUTSIDE AND INSIDE.

24. EQUIPMENT CABINETS, TERMINAL BOXES, JUNCTION BOXES AND PULL BOXES SHALL BE GALVANIZED OR EPOXY-COATED SHEET STEEL. SHALL MEET OR EXCEED UL 50 AND BE RATED NEMA 1 (OR BETTER) FOR INTERIOR LOCATIONS AND NEMA 3 (OR BETTER) FOR EXTERIOR LOCATIONS.

25. METAL RECEPTACLE, SWITCH AND DEVICE BOXES SHALL BE GALVANIZED, EPOXY-COATED OR NON-CORRODING; SHALL MEET OR EXCEED UL 514A AND NEMA OS 1 AND BE RATED NEMA 1 (OR BETTER) FOR INTERIOR LOCATIONS AND WEATHER PROTECTED (WP OR BETTER) FOR EXTERIOR LOCATIONS.

26. NONMETALLIC RECEPTACLE, SWITCH AND DEVICE BOXES SHALL MEET OR EXCEED NEMA OS 2 (NEWEST REVISION) AND BE RATED NEMA 1 (OR BETTER) FOR INTERIOR LOCATIONS AND WEATHER PROTECTED (WP OR BETTER) FOR EXTERIOR LOCATIONS.

27. THE CONTRACTOR SHALL NOTIFY AND OBTAIN NECESSARY AUTHORIZATION FROM THE CARRIER AND/OR DISH Wireless L.L.C. AND TOWER OWNER BEFORE COMMENCING WORK ON THE AC POWER DISTRIBUTION PANELS.

28. THE CONTRACTOR SHALL PROVIDE NECESSARY TAGGING ON THE BREAKERS, CABLES AND DISTRIBUTION PANELS IN ACCORDANCE WITH THE APPLICABLE CODES AND STANDARDS TO SAFEGUARD LIFE AND PROPERTY.

29. INSTALL LAMICOID LABEL ON THE METER CENTER TO SHOW "DISH Wireless L.L.C.".

30. ALL EMPTY/SPARE CONDUITS THAT ARE INSTALLED ARE TO HAVE A METERED MULE TAPE PULL CORD INSTALLED.
- dish

wireless

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- m

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REGISTERED

PROFESSIONAL ENGINEER
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- | | | |
|-----------|-------------|--------------|
| DRAWN BY: | CHECKED BY: | APPROVED BY: |
| APE | BPM | LJB |
- RFDS REV #: 101/04/22
- CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
<div>▲</div>	04.29.2022	90% ZD
<div>▲</div>	05.17.2022	90% CD
<div>▲</div>	01.13.2023	100% CD

A&E PROJECT NUMBER
SESEA00297B

DISH Wireless L.L.C.
PROJECT INFORMATION

SESEA00297B
10210 NE POINTS DR
KIRKLAND, WA 98033

SHEET TITLE
GENERAL NOTES

SHEET NUMBER
GN-3
- DISH Wireless L.L.C. TEMPLATE VERSION 38 – 07/23/2021
- BNR23-00595_APPROVED PLANS_03/28/2023_Page 18 of 19

GROUNDING NOTES:

1. ALL GROUND ELECTRODE SYSTEMS (INCLUDING TELECOMMUNICATION, RADIO, LIGHTNING PROTECTION AND AC POWER GES’S) SHALL BE BONDED TOGETHER AT OR BELOW GRADE, BY TWO OR MORE COPPER BONDING CONDUCTORS IN ACCORDANCE WITH THE NEC.
2. THE CONTRACTOR SHALL PERFORM IEEE FALL-OF-POTENTIAL RESISTANCE TO EARTH TESTING (PER IEEE 1100 AND 81) FOR GROUND ELECTRODE SYSTEMS, THE CONTRACTOR SHALL FURNISH AND INSTALL SUPPLEMENTAL GROUND ELECTRODES AS NEEDED TO ACHIEVE A TEST RESULT OF 5 OHMS OR LESS.
3. THE CONTRACTOR IS RESPONSIBLE FOR PROPERLY SEQUENCING GROUNDING AND UNDERGROUND CONDUIT INSTALLATION AS TO PREVENT ANY LOSS OF CONTINUITY IN THE GROUNDING SYSTEM OR DAMAGE TO THE CONDUIT AND PROVIDE TESTING RESULTS.
4. METAL CONDUIT AND TRAY SHALL BE GROUNDED AND MADE ELECTRICALLY CONTINUOUS WITH LISTED BONDING FITTINGS OR BY BONDING ACROSS THE DISCONTINUITY WITH #6 COPPER WIRE UL APPROVED GROUNDING TYPE CONDUIT CLAMPS.
5. METAL RACEWAY SHALL NOT BE USED AS THE NEC REQUIRED EQUIPMENT GROUND CONDUCTOR. STRANDED COPPER CONDUCTORS WITH GREEN INSULATION, SIZED IN ACCORDANCE WITH THE NEC, SHALL BE FURNISHED AND INSTALLED WITH THE POWER CIRCUITS TO BTS EQUIPMENT.
6. EACH CABINET FRAME SHALL BE DIRECTLY CONNECTED TO THE MASTER GROUND BAR WITH GREEN INSULATED SUPPLEMENTAL EQUIPMENT GROUND WIRES, #6 STRANDED COPPER OR LARGER FOR INDOOR BTS; #2 BARE SOLID TINNED COPPER FOR OUTDOOR BTS.
7. CONNECTIONS TO THE GROUND BUS SHALL NOT BE DOUBLED UP OR STACKED BACK TO BACK CONNECTIONS ON OPPOSITE SIDE OF THE GROUND BUS ARE PERMITTED.
8. ALL EXTERIOR GROUND CONDUCTORS BETWEEN EQUIPMENT/GROUND BARS AND THE GROUND RING SHALL BE #2 SOLID TINNED COPPER UNLESS OTHERWISE INDICATED.
9. ALUMINUM CONDUCTOR OR COPPER CLAD STEEL CONDUCTOR SHALL NOT BE USED FOR GROUNDING CONNECTIONS.
10. USE OF 90° BENDS IN THE PROTECTION GROUNDING CONDUCTORS SHALL BE AVOIDED WHEN 45° BENDS CAN BE ADEQUATELY SUPPORTED.
11. EXOTHERMIC WELDS SHALL BE USED FOR ALL GROUNDING CONNECTIONS BELOW GRADE.
12. ALL GROUND CONNECTIONS ABOVE GRADE (INTERIOR AND EXTERIOR) SHALL BE FORMED USING HIGH PRESS CRIMPS.
13. COMPRESSION GROUND CONNECTIONS MAY BE REPLACED BY EXOTHERMIC WELD CONNECTIONS.
14. ICE BRIDGE BONDING CONDUCTORS SHALL BE EXOTHERMICALLY BONDED OR BOLTED TO THE BRIDGE AND THE TOWER GROUND BAR.
15. APPROVED ANTIOXIDANT COATINGS (i.e. CONDUCTIVE GEL OR PASTE) SHALL BE USED ON ALL COMPRESSION AND BOLTED GROUND CONNECTIONS.
16. ALL EXTERIOR GROUND CONNECTIONS SHALL BE COATED WITH A CORROSION RESISTANT MATERIAL.
17. MISCELLANEOUS ELECTRICAL AND NON-ELECTRICAL METAL BOXES, FRAMES AND SUPPORTS SHALL BE BONDED TO THE GROUND RING, IN ACCORDANCE WITH THE NEC.
18. BOND ALL METALLIC OBJECTS WITHIN 6 ft OF MAIN GROUND RING WITH (1) #2 BARE SOLID TINNED COPPER GROUND CONDUCTOR.
19. GROUND CONDUCTORS USED FOR THE FACILITY GROUNDING AND LIGHTNING PROTECTION SYSTEMS SHALL NOT BE ROUTED THROUGH METALLIC OBJECTS THAT FORM A RING AROUND THE CONDUCTOR, SUCH AS METALLIC CONDUITS, METAL SUPPORT CLIPS OR SLEEVES THROUGH WALLS OR FLOORS. WHEN IT IS REQUIRED TO BE HOUSED IN CONDUIT TO MEET CODE REQUIREMENTS OR LOCAL CONDITIONS, NON-METALLIC MATERIAL SUCH AS PVC CONDUIT SHALL BE USED. WHERE USE OF METAL CONDUIT IS UNAVOIDABLE (i.e., NONMETALLIC CONDUIT PROHIBITED BY LOCAL CODE) THE GROUND CONDUCTOR SHALL BE BONDED TO EACH END OF THE METAL CONDUIT.
20. ALL GROUNDS THAT TRANSITION FROM BELOW GRADE TO ABOVE GRADE MUST BE #2 BARE SOLID TINNED COPPER IN 3/4” NON-METALLIC, FLEXIBLE CONDUIT FROM 24” BELOW GRADE TO WITHIN 3” TO 6” OF CAD-WELD TERMINATION POINT. THE EXPOSED END OF THE CONDUIT MUST BE SEALED WITH SILICONE CAULK. (ADD TRANSITIONING GROUND STANDARD DETAIL AS WELL).
21. BUILDINGS WHERE THE MAIN GROUNDING CONDUCTORS ARE REQUIRED TO BE ROUTED TO GRADE, THE CONTRACTOR SHALL ROUTE TWO GROUNDING CONDUCTORS FROM THE ROOFTOP, TOWERS, AND WATER TOWERS GROUNDING RING, TO THE EXISTING GROUNDING SYSTEM, THE GROUNDING CONDUCTORS SHALL NOT BE SMALLER THAN 2/0 COPPER. ROOFTOP GROUNDING RING SHALL BE BONDED TO THE EXISTING GROUNDING SYSTEM, THE BUILDING STEEL COLUMNS, LIGHTNING PROTECTION SYSTEM, AND BUILDING MAIN WATER LINE (FERROUS OR NONFERROUS METAL PIPING ONLY). DO NOT ATTACH GROUNDING TO FIRE SPRINKLER SYSTEM PIPES.



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RFDS REV #: 1 01/04/22

CONSTRUCTION
DOCUMENTS

SUBMITTALS		
REV	DATE	DESCRIPTION
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A&E PROJECT NUMBER

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DISH Wireless L.L.C.
PROJECT INFORMATION

SESEA00297B
10210 NE POINTS DR
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SHEET TITLE
GENERAL NOTES

SHEET NUMBER

GN-4